THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

OCTOBER, 1892.

MISSED BIRTH IN A DEER.

BY GEORGE FLEMING C.B., LL.D.

SOME time ago, Lord Darnley's head gamekeeper sent me, from Cobham Hall, a box containing a number of bones which he had found in a somewhat old deer that had been shot not long before. From his description the bones were lodged in the uterus—not in the peritoneal cavity—and were closely invested by the organ, which, so far as he could judge, was not in any way diseased or injured. When I examined the contents of the box I found, in addition to the bones, the remains of hoofs, some hair, and what appeared to be shreds of tendon; the bones themselves were chiefly those of the head, limbs, and pelvis. The round long bones were not much altered, but the flat ones—parietals, frontals and scapulæ—were perforated in places from absorption of their tables; all were of a very dark colour, and judging from their state of ossification and the development of the teeth, the creature must have been almost ready to be born.

How long the creature had lain in the uterus is, of course, impossible to state, but the appearance of the bones would lead to the inference that its sojourn there must have extended over a period of several years, as mummification in such an organ during the life of the parent is a slow process, and in this case all the softer tissues had completely disappeared, and the thinner parts of the hard ones were undergoing absorption.

This is, I believe, the first instance on record of what is called "missed birth" in any other than a domestic animal,

and for this reason I think it worthy of notice. It is not absolutely rare in the domesticated creatures, as I have mentioned in *Veterinary Obstetrics*, under the heading of "Abnormal Retention of the Fœtus," p. 186. There I have stated that nearly forty instances are recorded in English veterinary literature alone. I have also stated that "all the domesticated animals are exposed to this abnormal retention of the fœtus, but the cow far more so than any other creature—the frequency in this animal being as twelve to one in the mare and ten to one in the sheep."

I need not enter into a review of the causes or symptoms of this accident, as I have already noticed them in the above work. But it may be remarked that in the majority of cases pregnancy is well marked up to near the time of parturition, or even to that period when nearly all the signs of such an occurrence are apparent—enlarged mammæ, tumefied vulva, pendulous abdomen, restlessness and anxiety. Straining even begins, but the os uteri remains closed, and no fœtus shows itself. This condition may persist for only a brief space, and be so little marked as to pass unobserved in some instances; in other cases it may persist for two, three, or four days, the expulsive efforts gradually diminishing in force and frequency, until they altogether subside. The animal then regains its ordinary state, and, if a cow, the secretion of milk goes on as if there were nothing the matter. Health may never be impaired from this cause, and the condition of the animal is perhaps not suspected until, if it be a cow or sheep, it is fattened and slaughtered by the butcher for food, when the fœtus is found closely enveloped in the thickened walls of the uterus.

It has been observed that, as a rule, œstrum does not show itself in such animals. The exceptions are very rare, and a notable one is given in the precited work.

Missed birth must not be confounded with extra-uterine pregnancy, in which the fœtus is external to the uterus, and for this reason cannot be born. In some cases of missed birth, instead of mummification of the fœtus taking place, the air may obtain entrance through the os uteri, and then putrefaction sets in—perhaps a long time after the period was due for parturition.

ON INTESTINAL OBSTRUCTION AND COLIC IN THE HORSE.

BY E. WALLIS HOARE, M.R.C.V.S., CORK.

It is evident, from recent discussions, that there exists a great deal of difference of opinion among practitioners as to the pathology, symptoms, and treatment of that important collection of diseased conditions included under the head of Intestinal Obstruction. The importance of the subject no one will deny, as it is one which is commonly under notice in everyday practice, though perhaps oftener in town than in the country.

In many cases—in fact, in the majority—it is impossible to diagnose correctly the exact portion of the intestinal canal involved, though there may be some practitioners who pride themselves on their skill in this respect.

A *post-mortem* examination generally shows how much in error we may have been, not only with reference to location, but to the diseased condition itself. On observing and thinking over a large number of cases of severe abdominal pain, we are often led to believe that in many which showed grave symptoms and tended to a fatal termination, but recovered after treatment, the symptoms are not always to be relied on in these conditions. How often do we find cases showing all the symptoms described as characteristic of Enteritis recover after treatment? Whereas we know that if true Enteritis had existed, the termination would have been almost invariably fatal.

Again, we see cases giving evidence of the most acute abdominal pain, the animals looking back from side to side, sweating, wandering about the stall, sometimes lying on the back, with thready pulse, injected mucous membranes, and abdomen tympanitic—these symptoms being continuous, and leading us to suspect volvulus or some other grave lesion; such may recover under treatment, and we may ask ourselves what in reality was the exact affection from which the animal suffered?

Some observers lay stress on the character of the pulse, others on the peculiarities of the symptoms of the abdominal pain, as aids to diagnosis, and others, again, place reliance on rectal examination.

But it is certain that no one symptom, or collection of symptoms, will in many cases enable us to come to a correct diagnosis.

In works on human medicine, we find certain rules laid

down as aids to diagnosis in these affections; but these are of little value in veterinary practice. In Flint's "Practice of Medicine," we find, however, one passage which is of great value with reference to the points of distinction between Intestinal Colic and Obstructive Lesions.

It states "that invagination, internal hernia, and other obstructive lesions, with strangulation, cannot always be at once excluded. The existence of something more than colic is shown by persisting pain, tenderness, vomiting of stercoraceous matter, sometimes tenesmus, frequency of the pulse, prostration, etc.

"The absence of these symptoms warrants the exclusion of obstructive lesions. The possibility that some obstructive lesion may exist is not to be lost sight of in cases which at first have the appearance of simple colic."

It is this last sentence which is of most importance, and has a great bearing in the treatment of these affections in a rational manner.

Many cases in horses commence, to all appearance, as simple colic, and after a certain time show symptoms of a very grave nature.

Whether colic ever ends in enteritis, or that enteritis is a distinct affection from the commencement, is a point on which there is a difference of opinion. At any rate, it is evident that the affection which we recognise as enteritis must be of an entirely different nature to the disease under this heading described in human medicine.

Flint says "that as the disease in itself rarely proves fatal, the opportunity of inspecting the appearances after death is not often offered"; and also under the head of Prognosis, "that acute enteritis after infancy in the majority of cases is not a disease of great gravity."

We know only too well how fatal this affection is in horses, and how few ever recover.

With regard to treatment in colic and intestinal obstruction, which in reality is the real practical point, we find a great difference of opinion. Some practitioners advise the immediate administration of aloes, others give anti-spasmodics and anodynes. With reference to the employment of aloes, no doubt, theoretically speaking, if we could at once diagnose the exact condition of the case, and could be sure that it was simple, uncomplicated colic, due to a collection of irritating food in the intestines, then, indeed, the rational treatment would be the administration of a purgative to remove the offending substance.

But can we thus make a diagnosis? Can we determine what the case is going to develop into if the pain be unchecked? Are we to wait until the physic has acted and allow the pain to take care of itself?

And what time will it take for aloes to act in a horse not prepared for physic?

Professor Smith, in a paper read before the Central Veterinary Medical Society, makes some remarkable statements with reference to the treatment of Colic and Intestinal Obstruction.

He says: "As it is impossible in the first instance to say what a bowel case is going to terminate in, I believe it to be a safe and sound rule to give every case of violent colic aloes immediately, in order to save time. The best anodyne for the horse is Indian Hemp or Chloral Hydrate."

Now it is evident that the most important part in the treatment of colic is the relief of pain. It is the pain that will wear the horse out.

If the case turns out to be anything more serious than simple colic, of what advantage will the purgative be? Simply adding fuel to the fire and increasing the agonies of the animal.

If the case is to terminate fatally, the most humane method is to lessen the sufferings as much as possible by administering anodynes.

It is *because it is impossible in the first instance to say what the case is going to terminate in, that strong purgatives should be avoided.*

Take a case of impaction of the colon, of how little value do we find purgatives of the nature of aloes? But by subduing the pain, administering oleaginous laxatives, and the careful employment of enemas, we have often a successful termination. And as to the bowels not acting, we have plenty of instances in which such a condition has not given rise to any unfavourable symptoms.

If the case turns out to be volvulus or enteritis, the purgative treatment is simply adding to the sufferings of the patient.

With reference to the selection of drugs for the relief of pain, practical experience has proved that none are superior to opium, whether administered by hypodermic injection or given in combination with other sedatives and anodynes.

Chloral Hydrate cannot be depended on for this purpose, as being a pure hypnotic it does not relieve pain in the same manner as opium. Sleep may be produced by a powerful

dose, but the intestinal pain may be as great as ever when the patient awakes. The action of opium in the intestines is sedative, and sensible and insensible impressions from the mucous membrane are diminished. Of course there are drawbacks to the use of opium, as well as there are of any other drugs in use. It does not act in all cases alike, some being more excited in the first stages of its effects than others. I have often given morphia hypodermically in large doses, in cases of acute abdominal pain, and except in a few instances have not noticed the excitant effects, and the walking round the stall, etc.

But even if such often did occur, they would not by any means interfere with the anodyne effects of the drug in the intestines.

With regard to the use of Indian Hemp, this is a drug about which very little is yet known; it is said not to derange the stomach and intestines like opium, but, on the other hand, in large doses it produces a species of intoxication and delirium; so that we may infer it would have an effect on the horse, in this respect, far greater than the stimulant effect of opium on the cerebrum.

Of all the agents employed for the relief of abdominal pain, I have seen the greatest success from the administration of chlorodyne. I have used that prepared by Messrs. C. J. Hewlett & Son, and find it greatly superior to the use of opium or Tr. Opii, the effects being more lasting and the after-effects by no means so disagreeable. In severe cases it can be pushed to a great extent, and gives remarkable anodyne effects. Its action in removing spasm of the intestines is readily seen after a full dose has been administered.

With reference to the use of Enemata in the treatment of colic and impaction, their importance cannot be over-estimated. They will not be of service in all cases, as in some it is impossible either to make the fluid pass beyond a certain limit, or for the animal to retain it for any time. But in the majority of cases the effect is very beneficial if they are carefully given.

The old system of pumping in soap and water by means of a short tube into the rectum, and allowing it to escape as quickly as it enters, cannot be expected to be of much service, as the rectum can be easily cleared out by the hand, and the fluid only penetrates for a short distance. It is high up in the intestine that the obstruction usually exists, and our efforts should be to act on this portion. When we consider that the rectum of the horse is two feet in length, and the floating

colon about ten feet long, it is clear that for an enema to be of service a long tube is required. In Smith's Rectum Tube we have an instrument which fulfils all the requirements. Care, however, is necessary in its use, both as regards passing it and also in the case of a restless horse.

With regard to passing it, it should be well smeared with vaseline and introduced carefully; it should not be forced at all, but the water slowly pumped in will distend the bowel and make way for the instrument. In the case of an animal which is very restless from pain, I always give a large anodyne dose or a hypodermic one of morphia before venturing to use the tube, as there would otherwise be danger of the intestine being injured or the instrument broken.

I have this tube arranged for fixture to Winton's Enema Syringe, as I think the latter is the best form of syringe for the horse, the action being slow and non-irritating, and the fluid more likely to be retained. I have had great success in the use of this tube in cases of impaction of the colon, and have not only filled up the bowel with water, but in some cases have used linseed oil.

Before adopting this tube, I was in the habit of using a piece of hose pipe attached to the end of the enema syringe; but there was always the disadvantage of the tube turning inside. With Smith's Rectum Tube this does not occur, as it is of the proper consistency.

As to the use of Eserine or Physostigmin, I have very little experience, having only used it in one case of impaction of the colon. Its action was prompt, but I am of opinion that it is only in certain cases that it should be used, as there is danger of rupture of the intestine.

How to decide in what cases it should be used is the difficulty, especially so when we consider how many cases recover without its use, by time and patience and the employment of Ol. Lini and enemata. If we could always diagnose a case correctly, and be positive that the obstruction was due to the atony of the walls of the intestine, and an accumulation of alimentary matter as a consequence, then, indeed, the use of this drug would be of immense advantage. As to surgical treatment, I fear that the time has not yet arrived when the veterinary surgeon would venture upon abdominal section in the horse. At any rate, every case that died after operation would be put down by the owner as due to the operation, not to the disease; and we know only too well how ignorant and prejudiced horse-owners generally are in this respect.

The question is, how can we ascertain what portion of the

intestine is involved in a large cavity like that of the horse. In operating, a second practitioner would be required, and we may ask if the risk is worth all the expense.

Such operations suit well to describe at the lecture table, but in actual practice, with the case before us, the theoretical ideas are not of very much help. Save the horse if you can, but do not experiment, is the usual idea in the mind of the horse-owner.

In conclusion, I may draw attention to the fact that the medicinal treatment which I have mentioned is similar to that which is recommended in works on human medicine.

In Flint's Practice of Medicine, under the heading of Treatment of "Intestinal Colic," he says:—

"The object of treatment is the relief of spasm, as indicated by the cessation of pain. If, as is generally the case, an attack has been induced by the presence of irritating ingesta, measures directed to the spasm should take precedence of evacuants; and if, as is frequently the case, the bowels were constipated at the time of the attack, the removal of this condition is a secondary matter. So long as pain continues there is resistance to the action of cathartics, and to defer measures for the relief of the pain until the bowels have been evacuated, is to needlessly prolong the sufferings of the patient. The certainty with which colic yields to an efficient opiate treatment, renders it one of the affections which exemplify very palpably the resources of medicine."

ATROPHY OF THE "STERNO-HUMERALIS" MUSCLE IN THE HORSE.

BY VETERINARY-LIEUTENANT L. J. BLENKINSOP, VETERINARY SURGEON TO THE PUNJAB GOVERNMENT AND PROFESSOR AT THE LAHORE VETERINARY COLLEGE.

ATROPHY of the muscle "Sterno-humeralis" or Pectoralis anticus (*Chauveau*), is a lesion rarely seen in the horse, but it is one which, when it exists, may greatly interfere with the animal's usefulness. I am not aware that it has ever been described in Veterinary literature, and consequently now bring it to notice, as, in slight cases, it might easily be overlooked when examining an animal hurriedly.

The lesion is marked by a deep depression over the fleshy prominence situated on the anterior part of the breast. It can be most easily seen when the observer places himself at

a little distance immediately in front of the horse, and stoops until his eyes are on a level with the sternum—the animal standing square, with its head slightly elevated. The depression is more evident when the fore limb of the affected side is slightly abducted. When the two muscles are compared by passing the hand over each, that on the affected side will be found to have more or less disappeared, and the hand will pass into a pit of some inches in depth, between the brachial muscles and the chest.

Since 1888, when my attention was first drawn to this lesion, I have seen altogether four horses suffering from it. Three of these animals were Australian horses, and in these the atrophy of the muscle was most marked; in the fourth case, a country-bred pony, it was less noticeable. The following is a short description of these four cases:—

(*a*) Bay Australian gelding, with atrophy of the right muscle. This horse was brought to me in 1888, owing to its having fallen twice with its owner on

the previous day when being ridden over some small fences. The animal had been purchased a few days before, with a Veterinary Surgeon's certificate of soundness, and this was the first time his owner had ever taken him off the level road. I had an opportunity of riding this horse myself over some small fences, and found that, when he landed, the fore limb on the affected side appeared to slip away from under him, giving one a most unpleasant sensation, and eventually, after clearing a higher fence, he fell on landing. This horse was sold and worked well in a four-in-hand team for some years.

(*b*) Bay Australian gelding, brought up for sale at the Government Remount Purchasing Depot, Calcutta, in 1889-90. The left muscle was atrophied in this case.

(*c*) Chestnut Australian mare, seen at the Government Remount Depot, Saharanpur, in 1890. Left muscle atrophied. In this case there was also atrophy of the "Pectoralis transversus," or "Sterno-aponeuroticus" (*Chauveau*). (A photograph of this mare is given.)

(*d*) Dun country-bred pony, seen in Lahore, in 1892, working as one of a pair in a cab. Right muscle atrophied.

All these animals had the same marked peculiarity of action, both in walking and trotting, but some of them were decidedly lame. The affected limb appeared to be swung forward rather than extended in the natural manner, the point of the shoulder turning outwards, the elbow inwards, and the limb, from the elbow downwards, being advanced with a slight sweeping movement outwards.

I have never had an opportunity of making a *post mortem* examination of one of these cases, but I consider the atrophy to be due to a subcutaneous laceration of the fibres of the muscle at an early period of the animal's life. It is apparently more common in Australian horses than amongst those bred in India, as during the past two years I have seen some thousands of the latter animals, and have only detected one case in which it existed. After a considerable experience in the examination of Australian horses, I am of opinion that atrophy of muscles, in different parts of the body, is more frequently seen amongst them than it is amongst any other class of horse I have had an opportunity of examining. I

attribute this to the rough usage many of these horses receive on the few occasions they are handled, and also to these animals, accustomed to perfect liberty, fighting wildly when subjected to the slightest restraint.

With respect to the usefulness of horses, in which this particular muscle has become atrophied, I consider they are unsafe to ride; they should be used only in light draught over level roads, and, if possible, in teams rather than in single harness.

GLYCERINE IN THE TREATMENT OF COLIC.

BY FRED C. MAHON, M.R.C.V.S., LONDON.

MR. COATES, in an interesting article in the American *Veterinary Review* for January, 1890, a *resumé* of which appeared in the February number of the VETERINARY JOURNAL for the same year, drew attention to the treatment of colic in the horse by injections, *per rectum*, of pure glycerine; and other Veterinarians, as Schindelka, were quoted as to the experiments conducted by the latter on cats, dogs, and horses. Having for years past used this drug in colic cases in the horse, as also in constipation of the bowels in the dog in various diseases, I trespass on this occasion to relate my successes, which have not been few or far between when this drug has been employed and persevered with.

My experience for years has been extensive in abdominal diseases under varying circumstances, both in the horse and dog, and I am of opinion that no fixed rule can be laid down for the treatment of what, to some, are baneful affections, and the losses from which are far greater than the successes in actual practice.

In the early days of professional practice, where obedience to superiors was the golden rule, the purgative treatment was carried out pretty successfully. Later on, when unhampered, I tried the sedative and anti-spasmodic treatment, and I have yet to learn that a better and more successful plan is within reach. Without being too severe, I may add that the statements of Professor Smith, in his paper recently delivered to the Fellows of the Central Veterinary Medical Society, as to the pernicious effects perceived in the horse after the administration of opium or its compounds, in my experience of which the record is 347 cases in seven years, are not borne out; and that since commencing practice in the metropolis, I have not given a physic draught, or more than a pint of Ol. Lini in

some of the most painful cases of stoppage of the bowels, in which *flatus* was markedly shown, and stupor was a marked feature. In cases of engorged stomach, impaction of the colon, etc., I have relied solely on the administration of chlorodyne, with injections, where deemed advisable, of repeated doses of glycerine, 1 oz. at each injection. Another useful agent in my hands has been Ext. Belladonna, a drug which, in country practice, never failed me in a single case where functional derangement, other than organic disease, existed. On the grounds of expense and the different conditions met with in the metropolis, I have reluctantly passed the same by in favour of the before-mentioned, if one may add, "sheet-anchor" in colic cases.

Now, primarily in the horse; both in town and country practice, where divergencies of work, food, and hygiene exist, what shall I add of glycerine? that used as recommended by Mr. Coates, we have a marked and useful adjunct to our medicinal aids in treatment of bowel affections. In stoppage of the bowels, where little or no fæces have escaped over considerable periods, in one case recently under treatment, where this condition existed for 62 hours, and not more than 10 lbs. of fæces (weighed) escaped, I kept any tendency to inflammation of the bowels at bay solely with chlorodyne and injections of glycerine. I noted also a case in Norfolk some few years since, and which I reported in the *Veterinary Record*, in which sand ingested with the food caused fæcal stasis, with urgent cerebral pressure (hæmal) to be relieved by such agents. In this case several pounds of sand were removed at intervals from the rectum, and where a draught, given before I arrived, and which contained aloes in solution, aggravated the case, and the employment of glycerine proved successful.

As to canine practice, my experience, especially during the past year, warrants perseverance with this drug to a further extent. In debility, following attacks of distemper, and where bowel complications are shown—constipation being a marked feature—and the system is thoroughly weakened, and where it would be dangerous to administer aperients, I gave glycerine, both as suppositories and injections, to the relief and final restoration of my patients.

The claims of glycerine are therefore many, and these desultory remarks will, I hope, induce other Veterinarians to record their experiences with it, as I am confident that, with care and judgment, it will prove eminently satisfactory.

Anacker, experimenting on various animals, has proved

that from ʒs. to ʒss. was sufficient to increase the movement of the bowels; and Professor Vogel also reports that glycerine, when pure or diluted with one-third of water and injected into the rectum, causes more or less muscular irritation of the viscus and induces prompt movement. This has been my experience in all cases with the horse, dog, and cat.

The action of glycerine in these cases is believed to be due primarily to excitation of reflex action, thereby causing increased peristalsis of the large intestines.

It has further been shown that the action of glycerine in constipation is due to its hygroscopic power, drawing the moisture from the tissues of the rectum, slightly irritating the nerves and causing contraction of the viscus.

Experiments have also demonstrated that the quantity injected does not make much difference, but that the quality does. Pure undiluted neutral glycerine, with a specific gravity of 1·225 or 1·235, is the best for use.

Schindelka, than whom no greater authority on abdominal affections exists, has employed glycerine in more than 250 cases—horses, dogs, cats, and even goats, and with positive results in every case. He claims that in young or old, or sick or healthy horses, about 80 drops are sufficient to cause defecation. For cats about 20 drops are used, and for goats 30 drops.

AN ENORMOUS LAMB'S KIDNEY.

BY J. H. CARTER, F.R.C.V.S., BURNLEY.

THE enormous size of this remarkable and unique pathological specimen, particulars of which I have great pleasure in communicating to my brother practitioners, is one that does not fall to the luck of many to ever witness; and I hope it may prove as interesting to those who may take the trouble to peruse these few lines, as it did to myself.

The history is as follows:—

On Saturday last, August 13th, I received a letter from our Meat Inspector, requesting me to visit the Burnley Abattoirs to look at an enlarged kidney taken from a lamb just recently killed.

I unfortunately could not avail myself of the opportunity, owing to being confined to the house through a recent accident; so I wrote expressing my great disappointment in not being able to comply with his request, but signifying that I should deem it a great favour if he could by any

means send it up to my place, so that I might have the pleasure of examining it.

This was accordingly done, and it arrived soon after, carefully wrapped up in a large coloured handkerchief, with instructions that it (the kidney) would be again called for.

I must acknowledge my great astonishment when I opened the handkerchief, which, by the way, was a very large one, and strange to say only just large enough to allow the corners to be tied around the kidney.

I am sure my readers will be as equally astonished as I was when I relate the measurements of the organ, which were as follow, viz.:—Its greatest circumference, measured lengthways, was 2 feet 8½ inches, and round the body or fundus it was 1 foot 10½ inches; it weighed 12 lbs. Was at first tense and hard, but afterwards quite soft in consistency, and more resembled a uterus containing a fœtus than a kidney.

There was no doubt in my mind as to the cause of this unusual development, the mass being an enormous cyst or cysts containing myriads of the common hydatid, known best to us as "The Echinococcus Veterinorum." Remarkable to relate, the fellow kidney was perfectly normal to all appearances. Nothing unusual was noticed about this particular lamb previous to being slaughtered, and the carcase when dressed and hung weighed only 24 lbs.

I could not resist the temptation of taking French leave, and sending this truly remarkable specimen to Professor Williams, who, as a witness, can testify to the correctness of my description. I trust it may be a valuable addition to the museum of the New Veterinary College.

P.S.—Since this paper was penned, Professor Williams writes: With regard to naked-eye appearances, I was confident the sac was parasitic, but it turns out to be a mere retention cyst, originating either in the ovary—if it was a ewe-lamb, or in the kidney; or, rather, replacing the ovary or kidney, or both, of which not a vestige remains.

CONTAGIOUS FOOT-ROT IN SHEEP.*

BY PROFESSOR BROWN, C.B.

(Concluded from Page 187.)

Two years ago (1890) the question of the contagious nature of foot-rot was raised in a communication to the Society from Mr. Nott, of Tenbury,† who contended that the disease is only produced by means of contact with a diseased sheep, and that the only certain method of prevention is to avoid the introduction of fresh sheep on to a farm.

Mr. Nott sent two sheep to the Royal Veterinary College for the purpose of experiment in the beginning of April, 1890. The animals did not show any signs of foot-rot; indeed, their feet were perfectly healthy, but from the circumstances of their history it was believed that the disease would appear if the sheep were placed under favourable conditions. Accordingly, they were placed on a pasture on a clay soil, and the want of rain was as far as possible compensated by constantly watering the ground. Two healthy sheep were put in the same pen with these sheep, and kept with them till the end of the third week in June without any result. All four sheep remained free from disease.

On November 11 of the same year, a well-defined case of foot-rot was obtained and sent to the College, where it was put on grass with two perfectly healthy sheep. After about three weeks' exposure both the sheep became lame in one hind foot. The diseased sheep was much worse. Association of the animals was maintained until the middle of February, 1891, when the disease had practically ceased to exist. The diseased sheep and those in contact had recovered, and were perfectly sound. It is worthy of remark that during the whole time that this experiment was carried on the weather was generally dry.

In the early part of 1891, further experiments were conducted at Harrow and at Denham on a much larger scale than any which had been attempted previously. In the Harrow district the soil is stiff clay, and the difficulty was to find a pasture which had not become contaminated. At last an orchard was secured on which no sheep had been grazed certainly for many years past, and two diseased sheep from

* From the "Journal of the Royal Agricultural Society" for June, 1892.
† See Journal of the Royal Agricultural Society, Vol. I. (3rd series), 1890, p. 733.

the neighbourhood of Maidstone, which were sent by Mr. C. Whitehead, were used for the experiment. Foot-rot in these animals was fully developed in a perfectly typical form.

In the pasture at Harrow three pens were constructed. In No. 1 pen in the first week in April were placed the two diseased Kentish ewes, one sound Welsh sheep, and three sound tegs; whilst in No. 2 pen were placed two half-bred tegs, and in No. 3 pen two Welsh ewes.

Owing to the absence of rain the experimental pasture was in a very dry condition until the last week of May. During this period the sheep's feet were frequently examined, and nothing was found amiss with them, but rain having fallen for several days in succession towards the end of May, the pasture became thoroughly soaked, and almost immediately afterwards signs of foot-rot were apparent.

On June 2 the Welsh ewe in No. 1 pen was noticed to be lame on its left front foot. On the following day it was caught and the foot examined, when it was observed that the skin of the interdigital space was much inflamed, and that suppuration existed at the upper border of both claws at the interdigital space, whilst the leg immediately above the hoof was swollen and very hot. The left hind foot of this sheep was very hot, and on June 4 the disease had developed in this foot also.

On June 3 one of the tegs in pen No. 1 showed unmistakable symptoms of foot-rot in its right hind foot, but lameness was not marked until the next day; on this date also another of the tegs became lame. The remaining teg in this pen did not become affected until two months later, namely on August 2, when the pasture was again very wet. Two of these experimentally affected sheep had the disease in three of their feet, whilst in one it appeared in one foot only. During all this period of time the four sheep which had meanwhile been kept in pens Nos. 2 and 3, under precisely similar conditions as the sheep in pen No. 1, except that they had not been in contact with affected animals, continued sound.

One of the Kent ewes and the Welsh ewe in pen No. 1 lambed in May, each having one lamb, sound and well nourished. On August 8 the Kentish lamb, which remained from its birth in the pen, had foot-rot in the off fore foot, and by August 16 all the feet were attacked.

On August 31 the sheep from pen No. 1 were placed on another pasture (seven acres); and on September 2 the two sound tegs from No. 2 pen, and a Welsh ewe from No. 3 pen (also sound), were put into *No. 1 pen*, from which the affected

animals had been removed *two days previously*. On September 13 this Welsh ewe had foot-rot in both her front feet; on September 19 one of the tegs had also become affected. On September 19 a Cotswold wether and a cross-bred lamb (both sound) were sent from Denham, and were placed in the seven-acre pasture with the eight sheep out of pen No. 1. On September 23 all the sheep were placed in this pasture with the exception of one Welsh ewe, which had never been removed from pen No. 3, and was still sound. On October 2 the remaining teg* became affected in her right hind foot. On October 9 the cross-bred lamb from Denham had foot-rot in her off hind foot, and on October 11 the Cotswold wether had the disease, and was very lame in his right fore foot; while on October 18 both of the Denham sheep had the disease in two of their feet.

Up to October 25 the Welsh ewe, which remained still isolated in pen No. 3, was healthy, although the ground was extremely wet and the grass long; the Welsh lamb also continued healthy.

At the end of October the interest of the experiments was practically confined to the condition of the Welsh ewe, which had been isolated since the commencement of the work, and to the two sheep from Denham. The Welsh ewe had been removed on October 4 to pen No. 2. This was a healthy pen, lying very low. By October 25 it was a "quagmire." On November 8 this sheep had sores at the interdigital spaces of all four feet, due to irritation by foreign matter (mud, hay-bents, etc.), and was particularly lame on the right fore foot, but not from foot-rot. On November 14 it had still sores on all four feet, and there was loss of hair on the coronets, heels, and legs as high up as the mud extended; the interdigital spaces of all four feet still presented sores. This condition might be described as "foul in the foot" or "mud fever." The sheep was turned into the seven-acre field with the other sheep on November 14. It did not up to the date of its slaughter on February 9 develop foot-rot.

On November 8 the wether from Denham had foot-rot very badly in the left hind foot; the solar horn of both claws of this foot was "separated," and there was suppuration at the interdigital space. The right hind foot was nearly well. But the disease existed slightly in both front feet.

On November 8 the Denham lamb had foot-rot very badly in the left hind foot. The right hind foot was better. It had also foot-rot slightly in the right front foot.

* *i.e.*, remaining teg from No. 2.

The Kentish lamb, which had suffered terribly from the disease, having had it in all four feet, had new claws growing down from the coronet of the outside digit of three of its feet.

On November 14 both Denham sheep were greatly improved; all the sheep were then in the seven-acre pasture, and improved in condition for about a month, some of them getting quite fat; but on December 20 several of them again were extremely lame. This lameness appeared in a great measure to be due to the hardness of the ground, which was frozen, and to the overgrown and deformed condition of the feet. On January 11 (1892) the Denham lamb, which was very lame and lay about a good deal, was killed, and the feet retained as specimens. No sign of foot-rot was found on examination. On January 26 the feet of the speckled-face teg and of the Kentish lamb were found to be deformed, but were free from foot-rot.

On February 9 the remaining sheep were killed. All were free from foot-rot.

A fourth series of experiments was carried on at the same time at Denham, where an outbreak of foot-rot in the flock afforded a most convenient opportunity for an investigation.

July 23.—Five Cotswold tegs and five half-bred lambs were obtained from a hill farm at Cirencester, (where, during the last seventeen years, there had never been a case of foot-rot, and prior to that, so far as could be ascertained, foot-rot had never been known on the farm.) These sheep were arranged as follows :—

Pen A, in a barn on concrete floor.—One sound teg with one Soothdown ewe with foot-rot.

Pen B, same as above.—One sound lamb with one diseased lamb (foot-rot). These concrete floors were swept out clean every morning during the experiment. The pens were eight feet by seven feet six inches.

In orchard, running loose. (The orchard is a dry and well-drained meadow.)—One sound teg and one sound lamb with one diseased ewe and one diseased lamb.

On grazing meadow.—At first penned by side of stream, and afterwards with range of whole meadow. (This is a very damp low-lying meadow almost surrounded by water, where sheep are never kept.) Three sound tegs and three sound lambs were placed to be left for a considerable time to test the action of damp soil and long coarse grass on the feet.

August 3, 1891.—All the above were examined. The sound sheep remained sound, and the diseased sheep were still diseased, although a little better.

September 12.—Second examination, with result as follows:—

Pen A, in barn.—Sound teg still sound; diseased ewe very bad in all four feet.

Pen B, in ditto.—Sound lamb still sound; diseased lamb nearly well.

Orchard.—Sound sheep and lamb still sound; diseased ditto much better.

Note.—On September 17 one teg and one lamb, both quite sound, from grazing meadow, were sent to Harrow and put on the pasture with diseased sheep, and both of them became affected; on October 9 the lamb, and on October 10 the teg, the lamb in the off hind foot, the teg in the off fore foot.

October 6.—Third examination:—

Pen A.—The sound teg had developed the disease in all four feet, as the result of being in contact with the Southdown ewe with foot-rot since June 25, on a hard floor which was kept as clean as possible.

A similar result occurred in *Pen B*, in which the sound lamb had developed the disease in the off fore foot, the diseased lamb still remaining diseased.

In the *Orchard* the sound teg had developed the early stage of foot-rot in the off fore foot and both hind feet, the sound lamb showing disease very slightly in the off hind foot. Diseased ewe and lamb much better.

October 10, *Pens A and B.*—Disease becoming more developed in teg and lamb formerly sound; the ewe and lamb originally diseased are recovering

Sheep and lambs on grazing meadow.—These were thoroughly examined on this day, and their feet were found in perfect order, notwithstanding the long exposure to wet ground, long grass, and exceptionally wet weather.

October 12.—Two lambs from Pen B were sent to the Veterinary College, and the diseased ewe in Pen A was ordered to be killed and the feet sent to the College. The teg which had contracted the disease to be put in fresh pen (C), where no sheep had been before, with one sound teg and one sound lamb from grazing meadow. Floor to be kept thoroughly cleansed.

October 24, *Pen C.*—Teg and lamb free from any sign of disease, except that the lamb's feet were warm. Diseased teg remained in the same condition as when put into the pen.

November 5, *Orchard.*—Cotswold teg in orchard killed, feet sent to College; perfectly sound.

November 7, *Pen C.*—Diseased teg better, removed to

another pen. Teg and lamb from grazing meadow still sound. Sound teg and lamb left in Pen C, to observe if disease would appear from contact with the diseased teg, from October 12 to November 7.

November 12, *Orchard.*—Cross-bred lamb killed. Feet sent to College, quite recovered.

November 19, *Orchard.*—Southdown lamb killed. Feet sent to College; found to be free from disease.

November 27, *Orchard.*—Southdown ewe killed. Feet sent to College; found to be free from disease.

November 28, *Pen C.*—Teg showed redness and swelling on inside digit of the off hind foot. Lamb had the off hind hoof ragged at the toe.

December 4, *Grazing meadow.*—The teg still remained sound; killed, and the feet sent to the College. No sign of disease after exposure to wet soil since June.

December 21.—Four sheep now remained at Denham, two tegs and two lambs from Cirencester (Cotswolds). One teg with foot-rot left in a pen by itself. A teg and lamb remained in Pen C.

January 2, 1892, *Pen C, teg and lamb.*—Teg remained free from disease. Lamb, off fore hoof ragged at bottom: off hind foot, horny growth above digits; slight evidence of foot-rot. Diseased teg in pen by itself had the off hind hoof still bad; off fore foot, rotten sole; near fore foot better. Little paddock, the lamb (from grazing meadow) had the hoofs a little cracked at bottom, no sign of foot-rot.

April 2, *Pen A.*—Foot perfectly recovered. April 26, killed; sound.

Pen C.—Teg and lamb quite sound.

April 22.—Both killed, feet sound. Lamb from grazing meadow now on cricket ground, where foot-rot prevailed last summer, sound yet.

May 25.—This animal had been running with several sheep affected with chronic foot-rot since last summer, but did not yet show any signs of disease.

From these and other experiments the following conclusions may be drawn:—

(1) So far as the evidence goes, it justifies the statement that foot-rot is a contagious disease; the infective matter being active when brought in contact with the skin between the claws, or when introduced into the system by inoculation, and probably when taken in by the mouth from contaminated pastures.

(2) That it cannot be produced by long-continued exposure

to undrained moist soils with an abundant coarse and wet herbage.

(3) That animals exposed to these conditions for many months, and resisting entirely the influences named above, contract foot-rot in from fourteen to twenty-one days on being placed among sheep suffering from the disease.

(4) Sheep affected with foot-rot may improve, and from time to time become worse; and finally may recover and present a perfectly healthy condition of foot, notwithstanding that they have been kept the whole period under the conditions which induced the disease.

(5) That the contagium of foot-rot remains for some time in the system (ten to twenty days and longer) without any indication of disease appearing in the skin between the claws. An infected sheep may therefore escape detection even by an expert, and may introduce foot-rot into a sound flock.

Lastly, the question arises as to the possibility of sheep contracting foot-rot by taking the infective matter into the system during feeding on an infected pasture. It must, of course, happen in a pasture on which sheep affected with foot-rot are grazing that a very large amount of infective material is distributed, and consequently taken up by all the animals feeding on the meadow; but it is not certain whether the disease can be so communicated.

Further experiments will have to be carried into effect in order to determine the point. It will be necessary to place sheep on a pasture which had recently been fed off by sheep with diseased feet, and to protect the feet of the experimental sheep by some means so as to prevent contact with the virus.

Cure and Prevention of Foot-rot.

One important fact has stood prominently forward in the history of the experiments—*i.e.*, the spontaneous recovery from even the most advanced stages of foot-rot without any trimming of the hoof, the use of any remedial measures, or the removal of the diseased animals from the places where they were kept during the progress of the disease. Accepting the teachings of inquiry so far as the evidence at present extends, it may be said that Contagious Foot-rot has a period of incubation, followed by the development of a diseased condition of the skin, followed by the extension of disease to the secreting membrane of the internal foot, ending in loss of

the hoof, and a new growth of horn when the virulence of the malady is exhausted. In order that the course of the disease may be checked, timely detection is essential, and when foot-rot appears in a flock, every sheep should be examined daily if possible, or at least three times a week, and a dressing applied the moment that any moisture is seen between the claws. A mixture of one part of pure carbolic acid with ten parts of glycerine is a very useful application, a little of which may be *poured* from a narrow-mouth bottle on to the skin and allowed to run between the claws.

Trimming the diseased feet is an operation which should be done with care; as a rule the shepherd slashes the hoof horn away with his knife in a manner which may be described as brutal. In the advanced stages of the disease all the loose horn may be removed, and the club-like growths beneath it should be dressed with strong caustic—*i.e.*, pure carbolic acid, chloride of zinc, or perchloride of iron—and the parts protected by a coating of tar. But in a properly managed flock the disease should not be allowed to reach a stage at which such severe measures are necessary.

An easy method of dealing with foot-rot in a large flock without the work of daily examination of the feet is to drive the sheep twice a week over a dry floor which is covered with powdered lime, or through a trough containing a solution of one part of carbolic acid with fifty parts of water in which a little soft soap is dissolved. Sufficient fluid should be kept in the trough to insure that the feet are completely covered.

Prevention can only be secured by avoiding the introduction of diseased sheep on to the farm, and also the prevention of contact between healthy and diseased sheep, and with contaminated ground; a system which, if carried into effect, would entirely alter the customs of the sheep trade, as every farmer would be compelled to make his flock self-sustaining, and under no circumstances could he introduce on to his farm sheep from a fair or market, nor indeed from any source, until he had assured himself that they were quite above suspicion.

Editorial.

THE USE OF ANÆSTHETICS IN VETERINARY PRACTICE.

WE have observed, with much pleasurable satisfaction, the rapid increase in the number of veterinary surgeons who habitually resort to the administration of an anæsthetic when about to perform a painful or a difficult operation, in which passiveness on the part of the patient is all important. Even from a humanitarian point of view this innovation is to be highly commended; for animals should find their most powerful protectors from suffering in the ranks of the veterinary profession, and the example of its members in averting pain and showing a regard for the sensitiveness of our lower fellow creatures, must have a good effect on those who have the everyday care of them. But apart from this moral consideration, which certainly cannot be overlooked, there are great advantages to be derived from the employment of an anæsthetic in many of the ordinary, and nearly all of the extraordinary occurrences which the practitioner has to encounter; and now that such an agent can be so easily and safely administered, there is no excuse for withholding it when pain is likely to be protracted or severe, or much struggling or straining is present or anticipated. The cases in which the employment of chloroform or ether may, or should be, employed to produce either partial or total narcosis are far too numerous to enumerate; but we can call to mind that, in our earlier days, we would have avoided serious accidents and saved the lives of animals had we been able to avail ourselves of the great assistance anæsthesia affords. It is a great mistake to suppose that the veterinary surgeon's patients will not do so well after narcosis as if they had been allowed to plunge, strain, and struggle, and fracture limbs and break backs. On the contrary, experience proves that they do better, as there is not the exhaustion, and in protracted manipulations the shock, that is incurred when the animals are conscious and terrified; neither are the wounds, if any are inflicted, longer in undergoing repair; while to the operator the facility, rapidity, surety, and safety with which his work can generally be accomplished, is an immense boon. The day is, we have reason to hope and believe, not far distant when the veterinarian who does not employ an anæsthetic when occasion requires, will be considered a barbarous and unscientific practitioner, whether the animals he deals with be large or small, valuable or almost worthless.

THE HEREDITY OF TUBERCULOSIS.

In a letter to the *Mark Lane Express* of August 29th, Mr. P. R. Gordon, Chief Inspector of Stock, Brisbane, Queensland, writes with regard to the etiology of Tuberculosis :—

I have carefully read Professor M'Fadyean's letter on the above, and it has suggested to me the fact that, before anyone can correctly theorise on the subject, he should carefully study the disease as it is developed among the cattle stock of Australia. The Professor attributes the spread of the disease in great measure to the crowding of too many cattle into insufficiently ventilated cowhouses, and he makes the following remarkable statement :—"No wild animal in a state of nature has ever been known to die from tuberculosis; and with the exception of the few cases in which the disease is inherited or transmitted to the calf by means of the milk, cattle, even the most susceptible breeds, remain free from tuberculosis as long as they are not housed. In short, tuberculosis is a disease of domestication, of close housing, and bad ventilation."

Now, but for my extensive experience of the diseases among the cattle in Australia, I should have been inclined to agree with the professor; but how does he account for the prevalence of the disease here, in a colony possessing the finest climate under the sun (so far, at least, as Queensland is concerned), and where the cattle are never under a roof during the whole course of their lives? It has been my fortune—or misfortune—during the last three years, in my official capacity, to order the destruction of cattle suffering from tuberculosis, on the certificate of Mr. James Irving, a member of the Royal College of Veterinary Surgeons, our Government veterinarian, that they were so suffering, and few professional men have had more extensive opportunities of studying the disease from post-mortem examinations, and in not one instance have these condemned cattle ever been under a roof.

There are many instances here of cattle dying from tuberculosis that have spent the whole of their lives in the scrubs or other fastnesses of the Australian bush, that have never even been in a yard except when being branded while calves. May not such cattle reasonably come under the category of "wild animals in a state of nature?"

I have said that none of the cattle in Australia are housed, but that statement should be slightly qualified. There are a few—comparatively few stud herds, principally in the southern colonies, where a few bulls, cows, and heifers are stabled for a few months of the year in preparation for exhibition. But at most this would only be about two or three hundred out of eleven millions.

It does not appear from his letter whether Professor M'Fadyean is of opinion that the disease is hereditary, or whether the heredity only extends to a predisposition. In connection with this, it may be interesting to him and others in England who have given so much careful study to this insidious disease, to know that, in by far the larger (I am safe in saying an overwhelming) majority of cases of tuberculosis in the cattle of Australia, the disease is clearly traceable to pedigree stud cattle imported from England; and were it not that I might lay you open to an action at law, I could name the particular *lines* of cattle in which the disease is most prevalent here. I do not believe that "line breeding" *per se* will render cattle liable to tuberculosis, but that, as generally carried out in English herds, it *does* so, has long been the experience of Australians; so much so that with most owners of extensive herds "highbred" or "fashionably-bred" cattle are synonymous terms with "tuberculous cattle."

EPIZOOTIC ABORTION IN CATTLE.

EPIZOOTIC abortion in cattle is attracting much notice in every country, because of the serious loss it inflicts. Consequently, in veterinary literature it is very frequently alluded to, and its infectious nature is being more clearly revealed, not only from clinical observation, but also from the success attending sanitary measures, when these are of an anti-infectious kind.

In the *Thierärztliche Mittheilungen* for 1891, Veterinary-Surgeon Berner gives an account of an outbreak of bovine abortion for which he was consulted, and which has some points of interest. The accident occurred in a roomy, well-ventilated building, in which, for a period of between seven and eight weeks, six cows and two heifers had aborted, after being pregnant for from twenty-four to thirty-two weeks. The animals had been in good health, and appeared to be so when they aborted. When Berner was called in he carefully examined them, as well as the two bulls on the farm, and nothing was found amiss with them, except in the case of one cow which had a purulent discharge from the vulva; this animal had been put to the bull a few days previously.

The water and food being evidently of good quality, and nothing being discovered at all likely to cause the accident among the cows, Berner concluded that it was due to the operation of an infectious agent or agents of a specific nature, and framed his treatment on that supposition. The cows, as well as the bull which was suspected of having transmitted a vaginal catarrh to one of them, were placed in a stable, while the other cows were moved into the sheepfold, the attendants on one lot being forbidden association with those looking after the other. The place where the abortions had occurred was then thoroughly disinfected with carbolic acid, lime wash mixed with chloride of lime, fumigations of chlorine, etc.; even the manure was mixed with lime and immediately carried out on the land. These measures were completely successful, as no other case of abortion occurred.

EVERSION OF THE UTERUS IN THE MARE.

OF the accidents accompanying or following parturition in the mare, one of the most serious is that of eversion of the uterus, because of the difficulty of reduction of the everted organ and the rarity of recovery of the animal, which most frequently succumbs from exhaustion, or from the effects of metro-peritonitis. The mortality is consequently very high; for while in the cow it is estimated at about 12 per cent. from this accident, in the mare it is reckoned at 74 per cent.

The chief difficulty encountered in returning the uterus is due to the violent expulsive efforts of the mare, and her restlessness during the manipulations. With the view of obviating or diminishing these obstacles to reduction, a nnmber of expedients have been suggested which are more or less practicable and efficacious. In the *Annales de Médecine Vétérinaire* for February, Professor Hendrix, of the Brussels Veterinary School, describes an instance of this accident which he was called upon to deal with. The mare, which was seven years old, had foaled the previous night, and when seen by Hendrix the uterus was completely everted. Aware of the non-success generally attending attempts at reduction, and remembering the advice of Baumeister, Rueff, and Adelpinger, he decided not to operate until after the mare had been anæsthetised, and therefore he administered chloroform. When anæsthesia was complete, he had the whole of the uterus carefully washed with boric water, and then commenced reduction. This was rather difficult at first because of distension of the bladder, but when this viscus had been evacuated by a catheter

the reduction was easy. Assuring himself that the uterus was in proper position, Hendrix applied a bandage around the vulva to prevent its displacement as much as possible, and then allowed the mare to get up.

Emollient poultices were applied to the abdomen, with the view of averting immediate inflammatory complications, and for some days intra-uterine antiseptic injections were employed, at the end of which time the mare was well.

Hendrix attributes his success in this instance to the administration of the anæsthetic, which of course prevented the strainings and struggling of the animal, and permitted the uterus to be easily and rapidly devaginated. Any ill-effects likely to occur subsequently were doubtless averted by the antiseptic washing with the boric solution before reduction, and the intra-uterine injections afterwards. Barrier, who notices this treatment in the *Recueil de Méd. Vétérinaire* for August, remarks that in such cases, when the expulsive efforts are so violent, there is a means for preventing them on physiological principles —a means which is simple and almost exempt from danger. This is provisional tracheotomy, which prevents immobilisation of the thoracic walls and markedly diminishes the intensity of the expulsive straining, consequently much facilitates reduction of the extruded uterus.

AMPUTATION OF THE PENIS OF THE HORSE.

In the *Dictionnaire Vétérinaire*, Art. Penis, Professor Cadiot describes the procedure he recommends for amputation of the penis. This procedure is similar to that resorted to in human surgery, and Cadiot believes it to be superior to the operation practised hitherto. In proof of this, at a meeting of the Société Centrale de Médecine Vétérinaire in July last, he brought forward a case he had operated upon in this manner. Operation is usually necessitated when paralysis of the penis occurs during the course of some infectious malady, especially in contagious pneumonia or influenza. Then the penis is pendant, voluminous and œdematous, and scarifications and cauterisations in fine or in needle points are nearly always ineffective in bringing about a cure; therefore the organ has to be sacrificed.

The ordinary method of operating has the inconvenience of allowing the cicatricial retraction to diminish the urethral opening, and so to cause serious trouble in micturition. To remedy this trouble, this, at an early period after the operation recourse is had to forced dilation of the extremity of the canal; but repetition of this manœuvre is not without danger, as the mucous membrane becomes irritated, torn and inflamed at each intervention, is gradually indurated, and in course of time the construction is aggravated.

With the view of obviating this inconvenience, Cadiot has adopted the following *technique opératoire* :—

A metallic sound being introduced into the urethra and held by an assistant, who, by this means maintains the penis in an elevated position, the operator with a bistoury makes a circular incision through the skin, then about three-fourths of an inch lower he divides the corpora cavernosa, suspensory ligaments, accelerator muscle and erectile layer; then at a half or three-fourths of an inch lower still, the urethra is cut through. The clean cut incision occasions an abundant hæmorrhage, which must be checked. At first Cadiot thought of averting this effusion of blood by thermo-cauterising the tissues as he divided them, but the apparatus did not act well, and so he was compelled to twist the principal bleeding vessels, which, by reason of the unequal retractility of the tissues of the penis, were nearly on a level with the amputation surface.

The second stage of the operation was devoted to making a Λ shaped incision on the posterior surface of the stump, excising the piece of skin, the

accelerator muscle, and erectile layer, denuding the urethra for about half-an-inch to three-fourths of an inch, opening up the canal behind to that extent, and uniting the edges of the mucous membrane to the integument at the margins of the wound by silk sutures. This part of the operation is easily accomplished; but care must be taken in making the sutures, as the urethral mucous membrane is very delicate and readily torn by slight traction. When the animal is allowed to rise there is a little hæmorrhage, which may be arrested by the application of the forceps and the employment of the actual cautery at a dull red heat. In this case Cadiot alluded to—that of a fine draught horse, eight years old—five bull-dog forceps were left for twenty-four hours on the wound. During the evening, the night, and the following morning there were trifling hæmorrhages induced by the semi-erections that occurred during miction. When the forceps were removed, the post-operative treatment consisted of dressings with a one per cent. solution of corrosive sublimate, and immersing the stump of the organ in the same solution. At the time of description the principal wound was regular and very healthy looking; the small triangular wound on the posterior surface of the penis was also on a fair way to cicatrisation; on one side the sutures had yielded, but it was hoped that the mucous membrane would be drawn towards the integument by the cicatricial retraction and that this would enlarge the urethral orifice, instead of constricting it, as happens so frequently in the other operative procedures.

ACTINOMYCOSIS.

At the Congress of German Surgeons, held in Berlin (*Prager medicinische Wochenschrift*, July 27, 1892), Schlange reported observations of 130 cases of actinomycosis in man. Over one half of these were traced since 1886, and their history warrants a more favourable prognosis than has hitherto been attached to the disease.

In 80 of these cases, the process was limited to the head and neck; 40 have been cured for over two years. One case, in which the disease progressed along the base of the skull, died in six months from the inception, in consequence of meningitis. Another of these cases, which developed downwards, is still alive, 13 years after the beginning of the affection.

Regarding treatment, the author calls attention to the fact that extensive extirpations have been abandoned. Surgeons now content themselves with small incisions, scooping, etc., because actinomycosis tends to spontaneous recovery. He adds that it is barely credible how widespread an actinomycosis may recover without treatment of any kind. Even actinomycosis of the lungs is amenable to healing, except when the thoracic parietes are much perforated by the ray-fungus. Even actinomycosis, involving the abdominal organs, is not excluded from possible recovery. When in affects the intestines, the prognosis is bad; but when located in the abdominal walls, the prognosis is more favourable.

Billroth's suggestion to treat actinomycosis with Koch's tuberculine, has not proven efficacious.

Garré (same Congress, same journal), agrees that actinomycosis admits of a more favourable prognosis than has been given it. Cases which appeared hopeless, recovered in five to six years. Of the 20 cases he observed, only two terminated fatally.

He thinks that most cases of actinomycosis are dependent upon a mixed infection. He further believes that the anærobic fungi die on exposure to the air.

Eiselsberg (same Congress, same journal), mentioned a case of extensive actinomycosis of the abdominal parietes, which was cured in one year by

ten injections of Koch's lymph. He described another case in Kahler's Clinic in Vienna, now being treated with Kochin, which is approaching recovery.

THE PREVALENCE OF BOVINE TUBERCULOSIS IN SWITZERLAND.

We are gradually arriving at a knowledge of the extent to which tuberculosis prevails in many countries, and from the information already obtained one cannot fail to be struck with the inequality in its prevalence. That it is what the Germans would term a "Welt seuche" there can scarcely be a doubt, as it is known in every region of the globe where cattle are domesticated; and that it is not a disease due entirely to stabulation or close confinement, is disproved by the fact that it is very destructive in herds of cattle which live in the open air and are never housed at all; while there are striking instances which go to show that heredity plays an important part, no less than contagion, in its maintenance and diffusion.

Strebel tells us, in the *Schweizer Archiv für Thierheilkunde*, that in 1890, a number of Cattle Insurance Societies were started in the canton of Fribourg, when the total number of animals insured was 14,142, valued at 4,759,975 francs. Of this number, 239 died during the year, or 1·69 per cent, being about the normal proportion. Of the 239, 21 were due to tuberculosis, or 8·7 per cent. The district of Greyer, which is chiefly pastoral, and which had 5,165 cattle insured, had 101 deaths, only three of which were due to tuberculosis; while in the Broye district, of 3,181 insured, there were 43 deaths, 21 of which were tuberculosis.

Strebel remarks that robust animals, well fed of grass, hay, etc., appear to offer greater resistance to the disease than those which are weakly and not so well fed, as is the case in some parts of Switzerland.

THE RECRUDESCENCE OF RABIES.

As was foreseen when the Agricultural Department of the Government declined to take the only reasonable and effective steps to suppress Rabies, owing, we suppose, to political influence, that dread malady is again becoming prevalent since the abrogation of suppressive measures, and we read at only too brief intervals of human beings perishing in agony as the result of bites inflicted by rabid dogs.

In Cornwall, two lads who had been bitten by a stray dog near Saltash, died within a few days of each other. A gardener at Twickenham was attacked by a strange retriever, and died on the 14th August, in St. John's Hospital, in that town. A third death took place on the 22nd of the same month, in the Liverpool Infirmary. The unfortunate man, a brakesman in the employment of the London and North Western Railway Company, was bitten at Preston by a collie which he was endeavouring to save from being run over by a passing train. At Edinburgh, on the 16th August, a large retriever died from Rabies in the Dick Veterinary College, not, however, before it had bitten its owner and one of the attendants; and in September two deaths from hydrophobia were reported from Huddersfield.

These occurrences at far distant centres will show how widespread the seeds of the disease are, and the great danger that exists of another serious outbreak. In December, 1890, the Society for the Prevention of Hydrophobia issued a protest against the withdrawal of the Muzzling Regulations, but this, and the protests of those who were in the best position to understand the nature of the disease and the best means for controlling it, was unheeded; so we are now about to reap the consequences. It is very sad, but so it is and is likely to remain until a new order of things is established.

TUBERCULOSIS IN THE DOG.

AT a meeting of the *Société Centrale de Médicine Vétérinaire*, held on July 13th, Professor Cadiot brought forward the subject of tuberculosis in the dog. He had already, in November last, communicated three observations of this kind in which the disease was limited to the lungs and pleura, and since that date he had continued his researches, with the result that he had found eight more cases, with variable localisations—some with generalised lesions. Two of these cases he gave a minute description of, one of them being interesting from an anatomo-pathological point of view, the other because of its diagnosis. In the first the lesions were chiefly found in the thoracic and abdominal serous membranes, and they were of such a character that a superficial observer might easily have mistaken them for generalised malignant neoplasies. In the second the disease appeared in the form of pleurisy, a form which is relatively common in the dog, as in twelve cases of pleural phlegmasia which Cadiot had met with in this species during one year, six were of a tuberculous nature. In this instance, the existence of tuberculosis was diagnosed during life by means of inoculation, two guinea pigs having had a certain quantity of the fluid withdrawn from the dog's chest by thoracentesis introduced into their abdominal cavity. One of them died and the other was killed before the dog succumbed, and in both generalised tuberculosis was well marked.

An analysis of the cases of canine tuberculosis observed in France and elsewhere, shows that the infection presents itself in all the forms observed in the other domesticated animals. The visceral tuberculoses limited to one or a small number of organs are much more common than the granulation or tumour form.

The relative frequency of the tuberculous localisations in the different organs is shown in the following table, which was compiled from 49 observations, 28 of these being due to Jensen, of Copenhagen, and 14 to Cadiot :—

Tuberculosis of the	lungs	.. .. ..	31 cases
„ „	kidneys	.. .. ..	17 „
„ „	spleen	.. .. ..	6 „
„ „	prostate	.. .. ..	4 „
„ „	bladder and urethra	..	1 „
„ „	epididymis	.. .. ..	1 „
„ „	ovary	.. .. ..	1 „

In nearly one-half of these cases, the liver, peritoneum, and pleura were invaded, and in nearly all there were multiple lesions of the lymphatic glands. Even in the cases of mesenteric and peritoneal tuberculosis, intestinal ulceration was rarely observed. When the bacilli penetrate by the intestine, they do not usually leave any trace of their passage through the mucous membrane. In a case witnessed by Müller, which was affected with pulmonary tuberculosis, there was a large, cutaneous, and tuberculous ulcer at the upper part of the neck ; this sore had indurated borders, was covered with fine granulations, and a greyish very fluid pus escaped from it. The adjoining lymphatic glands were indurated.

The anatomo-pathological observations clearly establish that in the canine, as in the human species, the pulmonary lesions predominate by their frequency, and that they are often primary, a fact in perfect accordance with the results of experimentation. In the dog, the injection of tubercular matter only rarely yields positive results : while the inhalation of virulent dust is nearly always followed by pulmonary tuberculosis. With this animal, as with man, it would seem that infection through the air-passages is the rule, and inoculation by the digestive mucous membrane, the exception. In the case of pet dogs, which are the inseparable companions of phthisical people, we can

easily understand that infection by way of the lungs could readily take place, but such infection could be effected in other circumstances, for dogs which frequent certain places, such as drinking houses, cafés, &c., where dried sputa are not uncommon, might be infected by inhaling the dust that sweeping of the floors raises in the lower strata of the atmosphere where the dog derives the air it breathes.

THE HORSE-SICKNESS OF SOUTH AFRICA.

THE great interest and importance which attaches to this serious disease is greatly enhanced by the tidings which we have recently published from time to time with regard to the discovery of the microbe that is supposed to produce it, and evidence as to the inoculability of the malady. In a communication from Grahamstown, of August 3rd, from Dr. Edington, Bacteriologist, to the Agriculturist Department of the Cape Colony, to the Minister, Mr. Fischer, the announcement is made in the following terms :—

"I have the honour to inform you that I am in the happy position of being able to announce to you the discovery of the 'microbe' of Horse-sickness.

"In the lungs, blood, pleural effusion, and pericardial effusion of several horses which have died of spontaneous horse-sickness I have found by special methods which I have devised for that purpose that there is always present a special microbe.

"I have taken such fluids from diseased horses and with them inoculated sound horses, and in these also the same micro-organism has always with certainty been seen.

"In order to prove conclusively that this disease can with absolute certainty be inoculated from the diseased to sound animals, I preserved some virus in a certain way and with it inoculated a horse three weeks ago which died within a fortnight from horse-sickness.

"So far, Sir, I feel that we have good reason to congratulate ourselves on the results of our investigation, because when it is considered that in the case of almost every one of the infective diseases which have been investigated at home, a period of several years has been passed in investigation before the results obtained were as satisfactory as they are in the present case, I am therefore most hopeful of a happy issue to our labours, but of course before anything further can be said we must be able to find same way by which we can cultivate this organism apart from the animal body, and when this is arrived at we shall be able to produce the organism, I hope, either in a condition of extreme virulence or attenuated so that by its use a protection may be gained for the animals inoculated."

On this report Mr. Fischer remarks :—

"The possibility of inoculating horse-sickness has up till now been disputed, but Dr. Edington has apparently succeeded in communicating the disease in this way. As the special microbe which the bacteriologist has discovered was always found present in the lungs, blood, pleural effusion, &c., of horses that died of spontaneous horse-sickness, it is most likely that this is the *cause* of the disease, but before this microbe has been cultivated apart from the animal body, and before by the inoculation of the so-called pure cultivations thus obtained, typical horse-sickness is again produced, the proof cannot, of course, be considered quite conclusive. Dr. Edington may, however, succeed in attenuating the so-to-say impure virus with which he has been hitherto inoculating, so as to produce by its inoculation, not death, but immunity from the disease. In this way he might succeed in finding a preventive even before he has scientifically quite proved which microbe is the true cause.

"This latter course has led to a successful result in regard to lung-sickness, and to the use of a kind of virus about a year ago by Mr. Borthwick for inoculating cattle against that disease.

"Dr. Edington, assisted by Mr. Borthwick, is also busy at present in preparing lung-sickness-virus in larger quantities, and he reports that in this respect as well the work is progressing quite satisfactorily."

We anxiously wait for the details of Dr. Edington's investigations, as he has done in the Cape Colony what could not be accomplished in Natal, with regard to this African scourge. In one of the early numbers of this JOURNAL is a notice of the successful inoculation of a guinea-pig with blood sent from Natal, the experiment having been performed by Dr. Greenfield, then Director of the Brown Institution; but all subsequent attempts failed, probably owing to alterations in the blood during the long voyage.

GRAVES' OR BASEDOW'S DISEASE IN ANIMALS.

THE morbid condition with which the names of Graves and Basedow are associated is not very rare in mankind, but it is only recently that an affection closely allied to, if not identical with, it has been observed in animals. In man, as is well known, goitre is frequently accompanied by the exophthalmos and cardiac disturbance, and indeed it is these three symptoms which constitute the characteristics of Graves' disease. In later years we find mention now and again in veterinary literature of cases of goitre in different species of the domesticated animals, but until 1888, the malady under consideration was not reported as having been observed in them. In the *Archives of Veterinary Medicine*, published at St. Petersburgh in that year, Jeswejenko describes the case of a four-years-old thoroughbred horse which, after a long gallop, exhibited abnormally strong and frequent arterial pulsations, cardiac palpitations, and progressive weakness; it had tumefaction of the thyroid body, and in sixteen days there was very marked double exophthalmos, the ocular globes being so protruded, that the eyelids could no longer cover them. The animal died in about a month. The same observer had witnessed a somewhat similar case in a small pet bitch aged seven years, but it was cured in three months on being treated with iodine. In the annual veterinary report for the kingdom of Saxony for 1890, Roder alludes to a cow which had severe palpitation of the heart, frequent and violent arterial pulsations, a thyroid body hypertrophied to the size of a man's fist and with intense double exophthalmos. This condition had been in existence for four years. Another instance—the best hitherto described—was brought before a meeting of the Paris Central Society of Veterinary Medicine not long ago by Professor Cadiot of the Alfort Veterinary School. This case was that of a horse (gelding) about fifteen years old, which had been taken to the school as a patient. The owner had been in possession of it for only six weeks and knew nothing of its history, but he had noticed that it was gradually becoming feebler. On examination the animal was found to be emaciated, very weak and apparently exhausted, with a swollen and painful fore-limb and œdematous infiltration into the dependent parts of the body, as well as several small tumours in various regions. At the upper and front part of the neck, on the trachea, was a hard and indolent hemispherical tumour adhering to the inner surface of the skin, which appeared to be constituted by hypertrophy of the left thyroid body; situated on the left side of the trachea, it advanced to the middle line. On the right side there was only slight enlargement. A very striking symptom was noted on the course of the superficial arteries; this consisted of very strong and perfectly rhythmical movements of the skin over these vessels,

similar to those occurring in certain cases of aortic insufficiency; when the hand was placed over these arteries, bounding pulsations could be felt. These phenomena were more especially observed over the course of the glosso-facial, temporo-maxillary, posterior auricular, occipito-muscular, carotid and gluteal arteries. On each side of the croup and over the course of the latter vessel sudden jerkings of the skin and subjacent muscular layer were remarked at equal intervals—powerful pulsations synchronous with the cardiac systole. At the glosso-facial artery the pulse numbered from seventy to eighty beats per minute, and on compressing the superficial veins they assumed large dimensions. When the hand was applied to the præcordial region violent, precipitous and palpitating shocks were preceived, which, as it were, shook the thoracic wall. Auscultation also revealed serious cardiac disturbance, mainly marked by violent contractions of the heart which appeared to cause the animal pain. Rectal exploration of the posterior aorta and its terminal vessels gave evidence of their increased dimensions and abnormal pulsations. Inspiration was normal, but expiration was interrupted. The temperature was 38·4°C. The urine did not contain either albumen or sugar. The visible mucous membranes were slightly infiltrated, and an examination of the blood gave no reason for suspecting the existence of leukæmia. The symptoms increased in intensity and the thyroid body augmented in size until death ensued in three days after admission to the hospital. A necropsy showed the heart to be hypertrophied; it weighed seven kilogrammes; there were insignificant valvular alterations; the large arteries had an enormous calibre—they were about double their ordinary diameter—but their walls were thin; all the viscera were congested; the left thyroid body was more than ten times its natural size, measuring twenty-three centimetres in circumference and nine in diameter, and had a very vascular and fibrous aspect; it was surrounded by a thick capsule of connective tissue; there was only slight hypertrophy of the right thyroid body. In this case, related by Cadiot, one of the characteristic signs of Graves' disease—exophthalmos—was absent; but the others—cardiac palpitations, bounding pulse and hypertrophy of the thyroid—were certainly present. The absence of abnormal prominence of the eyeballs in this horse rather militates against the supposition that it was the malady in question; but then, as Cadiot pointed out, even in mankind all the symptoms enumerated are not equally conspicuous in every case, the goitre or the exophthalmos may at first be trifling and only become noticeable at a late period and successively, or be altogether absent. What predominate in this syndrome are the circulatory troubles, which appear to be dependent on an obscure lesion of the sympathetic nervous system or of the vaso-motor centres; and if it generally assumes a typical form easy to recognise it also appears in masked or abortive forms which render diagnosis difficult. In this case it was admitted that there was something more than a mere coincidence between the cardio-vascular disturbance and the hypertrophy of the thyroid body, and that it had at least a close relationship to Graves' or Basedow's disease, of the existence of which in animals the instances recorded leave scarcely any room for doubt.—*The Lancet.*

BUCCAL OR ORAL RESPIRATION IN THE HORSE.

It is universally taught and believed that the horse breathes only by means of its nostrils, and that when these are hermetically closed the animal becomes asphyxiated, respiration by the mouth being impossible. It is true that certain pathological facts which have been recorded can only be explained by admitting that, under certain very exceptional circumstances, horses can respire by the oral cavity; but the anatomical disposition of the soft palate in

solipeds is always pointed to as offering an impassable barrier to the move ment of air between the mouth and pharynx. Experimentally, it had been observed that that after compression or section of the pneumogastric nerves in the horse, something like buccal respiration took place, and this and other incidents appear to have induced Professor Guinard, of the Physiological department of the Lyons Veterinary School, to investigate this subject, and to publish the result in the *Journal de Méd. Vetérinaire et de Zootechnie*, for July, 1892, in order to demonstrate that horses can respire through the pharyngeal and oral cavities.

For more than a year and a half, Guinard's attention had been directed to the subject, and he had many times noticed that by complete obliteration of the two nostrils, an exclusively buccal respiration was obtained, and that the animal could carry this on for some time, though not without fatigue; for it was often obliged to make sustained efforts during inspiration and expiration, and which quite altered the ordinary automatical character of the respiration. Among the numerous animals upon which he had made observations, he had even found three which respired by the mouth with comparative ease; one of them was indeed remarkable in this respect, for it sufficed to only partially obstruct the free circulation of the air in the nasal cavities, to see the horse supplement the insufficiency of the pulmonary aeration by buccal respiration.

By means of the graphic method and by simple observation, Guinard sought to reveal the mechanism of this exceptional mode of breathing. In order to see the position the organs assumed during buccal respiration, the mouth was maintained widely open, and the bottom of the cavity well illuminated by means of lamp light reflected by a mirror. He saw that in normal respiration the soft palate entirely closed the isthmus of the fauces, in being closely applied to the base of the tongue; then, in closing the two nostrils, he remarked that, at first, the animal did not make the least respiratory movement, but, soon, efforts at inspiration and expiration were made, and these caused slight displacements of the soft palate forward and backward, though without immediately overcoming its resistance. The necessity for breathing became more imperious and the efforts more violent, and then the inferior border of the curtain began to vibrate and allowed the air to pass with a very sonorous, rattling noise. Gradually the buccal respiration was established, and when it was very free, it could be observed that usually during inspiration the soft palate was raised by the in-going air, and assumed something of a funnel shape while slightly vibrating. During expiration the same effect was produced, but in the inverse direction, the pendulous curtain being carried forward, and the air rushed in beneath its inferior border, which then vibrated with more force. It was also remarked that the access of the air was facilitated by a flattening of the base of the tongue, and there was slight elevation of the larynx during buccal respiration, its opening being carried forward and upward, so as to approach the isthmus of the fauces.

By means of Marey's pneumograph suitably arranged, it was ascertained that, when the horse's nostrils were suddenly closed, the animal immediately ceased to execute regular respiratory movements, and for 16 to 28 seconds seemed to suspend its breathing. After this lapse of time it commenced to make efforts analagous to those made by an animal which is being strangled, but they chiefly consisted of contractions of the diaphragm, marked by energetic beating of the flank, while the pneumograph tracings showed very abrupt variations in pressure due to successive aspirations and compression. Then the soft palate is raised by a vibratory movement at first, and buccal respiration is established, The first movements are deep, accelerated and brief, and number 24 per minute. The respiration becomes what Saint-Cyr called the *respiration énitante*, which is always a sign of dyspnœa, and which might well be the case when the nostrils have been closed for a few seconds,

and the animal is compelled to breathe by an abnormal passage. This dyspnœa does not appear to be of long duration, however, at least in the case of horses which respire well by the mouth; for the amplitude of the thoracic movements diminish after 12 or 13 inspirations to about four or five times less elevation, and are 40 to 48 per minute.

This mode of respiration appears to fatigue the animals very much, and some of those experimented upon could not maintain it for long, and showed alternations of buccal respiration and dyspnœic efforts; even those horses which appeared to respire with ease always seemed to be pleased when allowed to breathe by their nostrils, and they then made deep and ample respirations as if to seize the air they had lost. It was noted that during the buccal respiration the rhythm of the respiratory movements was modified, the inspirations being much longer than the expirations—often double and sometimes treble.

From his investigations Guinard arrives at the following conclusions:—Contrary to what is generally believed, every horse can respire by its mouth; this fact is general, but all cannot respire with the same facility, and in this respect there are considerable differences. It is therefore a mistake to believe that it is possible to kill a horse by asphyxia in closing its nostrils.

Buccal respiration exists, but it is always an abnormal and irregular mode which horses never adopt naturally, but only when they are forced to by some cause that offer an absolute obstacle to the entrance of air into the nostrils.

This kind of respiration is distressing to animals, and necessitates bringing all the respiratory energy into play. It ought, therefore, to be considered rare and exceptional.

THE DANGERS OF THE FLESH OF TUBERCULOUS ANIMALS

Professor Galtier, of the Lyons Veterinary School, a highly-competent authority on Veterinary Sanitary Science, and who has given much attention to the subject of Tuberculosis, has a paper in the Lyons *Journal de Méd. Vétérinaire* for August, dealing with the flesh of animals affected with that disease. In a note published in January, 1891, after relating the experiments he had made on fowls, cats, dogs, and guinea pigs, in giving to them as food the flesh of phthisical cattle seized at the abattoirs, he concluded by saying that he had not in a single instance succeeded in producing the disease, and added that he had reason for believing that the ingestion of such flesh, with the exception of the affected organs and lymphatic glands, is scarcely dangerous. It then seemed to him that it was a wise decision not to condemn the flesh of animals only slightly affected, and that it was enough to seize the organs which were diseased. In this paper he states that his views have not changed, and because of the feeble virulence of the blood and muscles of tuberculous animals—a virulence which can otherwise be only temporary—he believes that the consumption of such flesh cannot offer any serious danger.

He has lately made new experiments with condemned flesh from the Lyons abattoirs, in feeding animals with it in considerable quantities for several weeks, when chopped up and mixed with meal, and could not succeed in tuberculising them. The creatures so fed were calves and young pigs. Of the fourteen samples of flesh made use of in this way, the juice of two of them, when inoculated subcutaneously into rabbits, gave rise to marked tuberculosis. He concludes by stating that it would be quite exact to assert that the ingestion of tuberculous flesh is attended with very little danger, even when it is quite raw.

THE SOUTH AFRICAN "DRONK GRASS (*MELICA DENDROIDES*)."

WE have, in some of our earlier volumes, referred to grasses which are poisonous to the domestic herbivora in India and South Africa, and one of these was that known to the Boer of the last-named country as "dronk" grass, from its causing a kind of intoxication in the animals which consumed it. In the *Cape of Good Hope Agricultural Journal* for August 11th, a correspondent at Krantz Plaats writes that his cows had recently exhibited all the symptoms of a wild delirium—had been "drunk," in fact, and that the grass had been blamed. On this statement Professor McOwan, the Cape Colony botanist, makes the following interesting remarks:—

"There are several grasses known to possess the property of intoxicating the cattle that browse upon them. The one sent by Mr. Cronwright is *Melica dendroides, Lehm.* In my pamphlet on 'Stock Food Plants,' which is a *résumé* of evidence given before a parliamentary commission on deterioration of the veld, the matter is mentioned and the symptoms noted as generally resembling those produced by eating the seeds of *Lolium temulentum, L.*, viz., vomiting, giddiness, and intoxication in the human subject, and in cattle the two latter effects only. One is so apt to suppose all the *Gramineæ* to be harmless and useful, that a report on a dangerous grass comes as something of a surprise. But our 'dronk grass' is by no means without analogues in other countries. *Bromus catharticus* is purgative. *Festuca quadrivalvis*, a Peruvian grass, is decidedly poisonous to cattle, and the common upland grass of Europe, *Molinia cærulea, L.*, is reported to be dangerous to horses when in flower. Dr. H. F. Hance, in the *Journal of Botany*, vol. v., 1876, p. 210, describes a species of *Stipa* which in Mongolia intoxicates horses. The American horticultural journal, *Garden and Forest*, states that *Stipa viridula, var. robusta* is known in New Mexico as 'sleepy grass.' Cattle incautiously eating it are thrown into a profound stupor for twenty-four hours or more, but do not seem to show any evil after-effects, though they cannot be induced to partake of it again. It is curious that the typical *Stipa viridula* is quite harmless, and is valued as a hay and pasture grass. It is the variety *robusta* only that is narcotic. The whole subject is worthy of careful investigation by someone familiar with the pathology of stock animals, especially since the colonial dronk grass is decidedly spreading. Moreover, the effect of the narcotic grasses should be compared with the *'Nenta* poisoning of goats. It is not creditable that, in a pastoral country like the Cape, the 'Nenta phenomenon is still unsettled, and that half a dozen plants of widely different properties should be discredited with being the cause. Until further evidence is adduced, I hold to the original statement made before the Stock Commission, that a leguminous plant, *Lessertia annularis, Bch.*, is the cause of the mischief, the symptoms of which are almost exactly those described as caused by *Astragalus lentiginosus, Gray.* and *A. Hornii, Gray.*, the loco-weed of California, and *Swainsonia* and *Albizzia* in Australia. All these are leguminous plants, and act by paralysing or otherwise interfering with the function of the spinal cord and cerebellum. On this matter see J. H. Maiden ('Useful Plants of Australia,' p. 141, 155), and the U.S. Agricultural Reports, 1874, p. 159; 1886, p. 75."

GLANDERS IN LONDON.

RECENTLY a meeting of the members of the Royal College of Veterinary Surgeons practising in the metropolis and suburbs, was held at the Royal College of Veterinary Surgeons, to consider the necessity of an amendment of the law relating to glanders and farcy. Mr. W. J. Mulvey, the president of the college, occupied the chair, and expressed the hope that the result of that

meeting might be that representations would be made to the Board of Agriculture, asking for such an alteration in the law as might be the means of eradicating the loathsome disease. As the law now stood, a distinction was made between glanders and farcy, although the veterinary profession had for years pointed out that they were really one and the same disease. In the case of glanders, an inspector could, after giving 14 days' notice to the owner, order an animal to be destroyed, but in farcy, he had really very little power. Nearly all veterinary-surgeons agreed that glanders and farcy should be scheduled as one disease, and that compulsory slaughter should be at once enforced; that a thorough disinfection of infected stables should be carried out by inspectors specially appointed for the purpose, and whose whole time should be devoted to the duties of their office. There had been a steady increase of glanders amongst horses. In the four weeks ended the 27th ult., 288 cases were reported, of which 238 occurred in the metropolis. He learnt on good authority that the Board of Agriculture had at length been aroused to the existing danger, and that at the present time an Order in Council was in course of being drafted somewhat on the following lines:—Glanders and farcy to be scheduled and dealt with as one disease; that county councils might order the compulsory slaughter of animals affected with farcy, paying for the latter half a fair valuation; that every veterinary-surgeon should be compelled at once to report to the inspector of the local authority every case of infectious or contagious disease amongst animals that came under his notice, in respect of which report he would be paid a small fee. Failing to report any case, he would render himself liable to a prosecution. After considerable discussion, the subjoined resolutions were adopted:—"(1.) That amendment and consolidation of the law relating to glanders and farcy is necessary. (2.) That in any alteration of the law, immediate and compulsory slaughter must be applied to all cases of farcy, as well as to glanders. (3.) That a more systematic inspection of infected or suspected places be enforced. (4.) That a staff of veterinary inspectors, directed by the Board of Agriculture, be specially appointed to effect the extirpation of glanders and farcy. (5.) That compensation be paid for all horses slaughtered as farced or suspected of being farced or glandered. (6.) That this meeting views with disapproval the action of the Metropolitan Drinking Fountain and Cattle Trough Association in again opening their troughs for the watering of horses, as such troughs are undoubtedly a great source of disseminating glanders." Copies of the resolutions were directed to be sent to the Board of Agriculture and the County Council, and a committee of five was appointed to support the resolutions by deputation to the authorities concerned.

VETERINARY SCIENCE IN THE CAPE OF GOOD HOPE COLONY.

THE report of the Cape of Good Hope Department of Agriculture for the year 1891—92, which has just come to hand, contains much interesting matter with regard to the condition of the live stock in that progressive colony. The information furnished by the Colonial Veterinary Surgeon, Mr. Hutcheon, is particularly instructive, dealing, as it does, with the diseases of the domestic animals in that extensive quarter of the South African Continent, and to some degree with their production and improvement. The first item that attracts attention in the report is the extremely arduous duty imposed upon Mr. Hutcheon and his assistants, Veterinary Surgeons Borthwick and Soga, who appear to be almost constantly on the move over wide tracts of country investigating outbreaks of disease, advising upon medical and hygienic treatment of animals, performing experiments, delivering lectures, &c., work which

entails great hardship and anxiety, because of its being more than can be satisfactorily accomplished by these three gentlemen. However, it is agreeable to notice that the Secretary of Agriculture, in commenting on a statement of Mr. Hutcheon as to these excessive demands, remarks that another veterinary surgeon was expected in a week, and provision had been made for two more on the new estimates.

The principal diseases which had to be dealt with during the year were horse-sickness, bovine contagious pleuro-pneumonia, red-water, glanders, scab, and internal parasitic affections, principally wire-worms and tape-worms in sheep and lambs, and goats and kids, and fluke.

Horse-sickness prevailed widely as an epizoöty over a large portion of the colony, and Mr. Hutcheon calculated that, though the scourge had not ceased, about 25,000 horses had already died of the disease. Curative treatment was of little avail, and the only hope of averting such serious ravages lay in the perfecting of protective inoculation, which Dr. Edington was working at, and which Mr. Hutcheon anticipated would be successful. It is incidentally mentioned that Dr. Edington inoculated a horse with fluid from the lung of one that had died of the disease, and this inoculated horse soon manifested all the typical symptoms of the pulmonary form of horse-sickness, the *post-mortem* appearances also corresponding exactly with those seen when the disease was contracted in the usual manner.

Mr. Hutcheon mentions a malarial catarrhal fever affecting sheep, and also alludes to discovering cattle with actinomycotic tumours about their head.

We shall continue to look forward with much interest for these annual reports, as they yield most useful facts in pathology, and demonstrate the great services veterinary science can afford in such a country as South Africa.

DISEASES AMONG ANIMALS IN NEW SOUTH WALES.

FROM another report issued by the New South Wales Department of Mines, we learn that excellent results are being achieved by the application of veterinary science in that section of the great Australian continent, the health of its live stock being confided to the skilful attention of Mr. Stanley, Government Veterinary Surgeon, and Mr. Bruce, Chief Inspector of Stock. Here, as in South Africa, bovine contagious pleuro-pneumonia makes itself seriously felt, and preventive inoculation is extensively practised. In every instance except one (in which the virus was at fault) it was resorted to with satisfactory results. A very large majority of owners are in favour of the compulsory inoculation of all herds in which the disease appears, and it is hoped that legislation in this direction will soon be obtained, as it is believed that by this measure the malady will be ultimately conquered.

Tuberculosis in cattle is dealt with by law in the "Diseased Animals and Meat Act," which imposes a penalty on anyone selling, consigning, or exposing for sale, or supplying for rations, any diseased animal. The diseases now dealt with under this Act are Anthrax, Actinomycosis (which is present in New South Wales) and Cancer. We cannot quite understand the nature of the disease to which the term "Cancer" is applied, as it is stated that cattle to the number of 3,638 were reported as having died of Cancer and tubercular swellings in the throat. It is not at all improbable that these were really cases of Actinomycosis.

Anthrax causes much loss, but this has been greatly diminished since the adoption of Pasteur's method of protective inoculation. During the year 98,261 sheep were so treated, and of these 67,950 were inoculated twice; while 33,311 which were inoculated twice in 1890 received a third inoculation. The

loss from the entire operation and from disease afterwards was less than ½ per cent. Experiments were made to determine the susceptibility of different species of animals to Anthrax, and the following were the conclusions arrived at :—

Sheep are the animals most susceptible, whether the microbes are introduced by inoculation or ingestion.

Goats have about the same susceptibility.

Mice, guinea-pigs, and rabbits are very easily killed by inoculation, but are most difficult to kill by ingestion.

Rats are very difficult to kill by either method.

Cattle take the disease easily by ingestion, as we see in epidemic outbreaks, but they are not so easily killed by inoculation.

Deer take the disease easily by inoculation, and occasionally epizootics occur which indicates ingestion also.

Horses take the disease both ways.

Pigs resist the disease by both methods, and very rarely become affected.

Dogs seldom or never take the disease.

Foxes resist the disease by both methods.

Cats are more susceptible than dogs, but resist the disease by inoculation.

Bears are liable to have the disease.

It is almost impossible to give the disease to birds; frogs and fishes will not take it.

Kangaroos are susceptible to Anthrax by inoculation.

Epizootic ophthalmia was reported in cattle and sheep. Red water was also prevalent.

Sheep were exempt from scab in New South Wales, as well as in the colonies of Queensland, Victoria, South Australia and Tasmania, and, it was believed, in New Zealand also; but it was present to a slight extent in Western Australia. Foot-rot, which was ascribed to wet seasons, running on low, rich pasture, and contagion, was also more or less frequent in thirty-seven districts; while in twenty-three districts they were affected with Fluke, and in thirty-four districts 16 per cent. were infested with parasitic worms.

Among pigs no disease whatever was reported, a happy circumstance due to the fact that the importation of foreign pigs is prohibited. No disease in dogs was reported, and rigorous quarantine regulations have been enforced for some years against foreign dogs, thirty-one only being imported during the year. Complaint is made that Victoria and South Australia still adhere to the practice of keeping foreign dogs in private quarantine.

With regard to horses, it is mentioned that they were unusually free from epizootic diseases during the year. Anthrax was reported in one district, and Australian Stringhalt in another district. Strangles was of a mild character during the year, and was reported in seventeen districts. Prurigo continued to give trouble in five districts. Influenza made its appearance towards the end of 1890 in seven districts, and continued until the end of spring. Glanders was introduced from America by circus horses, a pony and horse having been detected with this disease. These were at once killed, the ground on which they had been was disinfected by burning and other means, and all the other horses were quarantined on an island. Subsequently the malady broke out at various intervals among the remaining horses while in quarantine, and four more had to be destroyed. The others—thirty-seven in number—were then re-shipped to San Francisco.

A number of horses died from eating Chinese melon, which forms into balls in the stomach.

There were supposed to be 3,815 wild horses in the colony.

Altogether the report is one of peculiar interest and importance, and we can only regret that we cannot devote more attention to it.

URETHAN IN THE TREATMENT OF TETANUS.

MARESTI (*Prager medicinische Wochenschrift*, June 29, 1892), gave 2·0 to 3·0 grammes (gr. XXX. to gr. XLV.) of urethan in aquæous solution daily, in cases of traumatic tetanus in people who were not affected by large doses of chloral. Complete recovery resulted in a few days from the use of urethan.

FUCHSINE AS AN ADJUNCT TO ANTISEPTICS.

BOGROW (*Prager medicinische Wochenschrift*, July 27, 1892), premising that aniline colours penetrate the tissues deeply, proposes the employment of antiseptics in solutions of such staining matter. He has for some time been using fuchsine for this purpose.

A pharyngeal mycosis, which had defied the strongest antiseptics, healed quickly after fuchsine had been added to the sublimate solution.

The author also advises the use of antiseptics in fuchsine solution in beginning or extended laryngeal tuberculosis.

The penetration of fuchsine solution into the mucous membrane enables antiseptics to act more efficaciously, and the healthy parts are protected from the bacilli contained in the extruded secretions.

Reviews.

THE LAW OF HORSES. By D. ROSS STEWART, M.A., LL.B., ADVOCATE. (Edinburgh: William Green and Sons, 1892.)

This is really a book on everything pertaining to horses from a legal point of view, by a learned lawyer in the Scottish courts, and its scope and aim are set forth in the preface, where the author says: "My object in undertaking the following work has been to bring, within a volume of moderate size, a view of the principles, enactments, and cases in Scots Law that relate to horses." In carrying out this object he has, when necessary, gone beyond the bounds of the subject, so far as the law of Scotland is concerned, and has sought in English authorities for illustration of that law. He also points out differences between the legal systems of the two countries—an important matter; while cases are cited relating to other subjects than horses, as authority for the general principles of contract, fraud and negligence pertaining to transactions in which these animals are concerned.

The thorough completeness of the treatise is evidenced in the table of contents, no less than in the body of the work, which embraces nine chapters. The first of these deals with everything connected with sale and contract; the second treats of warranty and sale for specific purposes; the third of hiring and loan; the fourth, and most important, perhaps, so far as our profession is concerned, relates to custody, veterinary treatment, hypothec and diligence. The whole of this chapter is of interest to veterinary surgeons, but more especially that which deals with their responsibility, a weighty matter, as some have found to their cost. It is laid down that where a horse is sent to a veterinary surgeon, the sender is entitled to presume that he has the ordinary skill of a man who makes this business his profession, and his obligation is for a due application of the necessary attention, art and skill. The rule is, that if an apprentice only be employed, instead of a master, he is responsible for a fair exertion of his capacity; but that where a professional man is emloyed to perform any specific act, it must be done according to rule —neither negligently nor unskilfully—and if there be no settled rule, but a

known method of performing it, it must be followed. Further, if an operation be intricate and difficult, a professional man, though he err, is not liable if he fairly exert the best of his skill and judgment; but he has the onus of proving that injury, while in his hands, was not due to his fault. In regard to veterinary treatment for disease, the same rules apply which govern the treatment of persons by a medical man. A veterinary surgeon is bound to bring reasonable skill and fitness to the subject under treatment, and he must exercise it with due and proper care. If he be deficient in fitness, or having the requisite skill, fail to exercise it properly and carefully, he is liable for any damage that may ensue. And if he is employed professionally, and undertakes a case, that is sufficient to render him liable for negligent treatment; accordingly, in a case of negligent treatment, it was not found necessary to aver by whom the medical man was employed, nor by whom he was to be paid. A veterinary-surgeon, moreover, is bound to exercise the same degree of care and skill by whomsoever he may be called in.

In regard to the granting of veterinary certificates of soundness, Mr. Stewart says that the rule appears to be, that if a veterinary-surgeon give a warranty wrongfully, to render him liable the case against him must come up to this, that he acted as no intelligent and properly-educated veterinary-surgeon would have done when he examined the horse; in fact, that he did not exercise a reasonable amount of skill and intelligence. His liability appears to be limited to the party by whom he was employed. Thus, if a buyer stipulates that a veterinary-surgeon's certificate of soundness is to be given with a horse he is to purchase, and the seller provides one which the buyer can show was negligently given, he has no remedy against the veterinary-surgeon unless he can prove that between the veterinary-surgeon and the seller there was a conspiracy to defraud. If, however, the veterinary-surgeon is employed by the buyer, or jointly employed by the buyer and seller, he is liable to either party for gross negligence in granting a certificate.

The responsibility of the horse-shoer—or as Mr. Stewart designates him, the smith and farrier—is no less clearly laid down. A curious point is noted, and that is that in England a farrier cannot refuse to shoe a horse if it be brought to him at a reasonable time; but in Scotland this is not compulsory, and the shoer is at liberty to decline to shoe a horse brought to be shod.

Then there are chapters on carriage by land and water, on responsibility for the negligent use of horses, on defences to actions of damages for injury to horses and caused by them, on damages, and on insurance, together with a most useful appendix, in which is an explanatory digest of the Veterinary Surgeons Act, and other matters of high importance to those who have to do with horses. To these, and more particularly to veterinary-surgeons, this work must prove invaluable in questions of jurisprudence, and the great care with which it is evidently written, together with the clearness and terseness of the style, entitle us to give to it the highest commendation. The volume is handy—numbering less than 300 pages—provided with a capital index, and the paper and type leave nothing to be desired. No veterinary practitioner should be without a copy, to be used as an instructor, guide, and protector of his interests.

A Manual of Veterinary Physiology. By Veterinary-Captain F. Smith, M.R.C.V.S. (London: Bailliere, Tindall and Cox, 1892.)

Anything professional undertaken by Veterinary-Captain Smith is certain to be conceived and carried out in a thoroughly scientific spirit, and to be done well. We may adduce this work in proof of the statement. Within the compass of a few pages more than four hundred, he has given an excellent epitome of the physiology of several of the domesticated animals—indeed, as much as students need know of such a very extensive subject. If they

thoroughly comprehend the contents of this manual, they need not fear the examination on physiology, as the broad facts of that science are succinctly laid before them; in this way the book supplies a want which has been experienced ever since the establishment of veterinary schools in this country, strange to say. Of course, very much of the matter which the author has so ably handled comes as much within the scope of human as animal physiology, so that the essentially veterinary portion is that which will most attract the attention of the practitioner who has to apply his physiological knowledge to the requirements of every-day work. This information is, on the whole, good, and, so far as we can judge, exact; for where the author cannot speak from his own observation, he adduces the evidence of the best authorities in this special section of the science of organisation in action, and has evidently done his utmost to render the statements clear and sound. Of course, objection may, and no doubt will, be taken to some of these, as they relate to subjects —chiefly of equine physiology and pathology—which have been discussed for years, and to which probably many more years' disputation will be devoted. But we find a few observations on different subjects which are not, to our mind at least, based on fact; and we may be pardoned if we refer to one or two of them, not from the slightest desire to detract from the merits of the work—for it deserves nothing but praise—but to point out the necessity for further investigation and, if need be, correction. For instance, in the chapter on respiration, at page 82, it is asserted that "in the horse nasal respiration alone is possible." Now this is not correct, for almost daily experience demonstrates that horses can, and do, in exceptional cases, respire by the mouth. How often have we seen a twitch applied to the nose so as to occlude the nostrils and prevent the admission of air by these openings, when, after some severe struggles, the mouth has been opened and breathing established through it, thus averting asphyxia. We have for years noticed this oral respiration occur when a horse has been seized by the nostrils, and also during the progress of disease. Recent experiments by Professor Guinard, and which are alluded to in the present number of the JOURNAL, are quite conclusive in this direction; and, indeed, our author admits the possibility of such a mode of respiration in his description of yawning (p. 376), when he says that during this act, in which there is a deep, slow inspiration, he "is not certain whether the whole of the air or only a part of it passes by the mouth."

But perhaps it is in the chapter—all too brief and incomplete—treating of the functions of the horse's foot, that the larger number of disputable statements is to be found. For instance, in speaking of the sensitive laminæ (p. 358), we are told that it is universally recognised that the weight of the body is sustained by them. "That the enormous weight of the horse's body should be carried upon, or, rather, slung upon, these delicate strips of sensitive material on the one hand, and correspondingly delicate strips of horn on the other, is perhaps the most remarkable feature in the physiology of the foot. We know how firm the union is, we know the extreme difficulty of separating these two parts, even by mechanical means, in a state of health, and we readily recognise the delicate structure of the parts yielding this firm yet flexible union. The horse's weight is supported in the foot by the dovetailing of 500 or more horny laminæ, the union being made the more complete by each primary sensitive and horny lamina containing 100 or more secondary laminæ. These laminæ afford an immense surface of support," etc. This is, if our memory serves us aright, a reproduction of Bracy Clark's notion of the use of the keraphyllæ and podophyllæ, as he designated the laminæ, but we thought his fanciful hypotheses regarding the functions of the different parts of the horse's foot had been retired into obscurity generations ago. Perhaps there is no portion of the foot less adapted to sustain the horse's weight without injury than these delicate leaves. It is now drawing towards forty

years since we devoted many laborious hours to the investigation of the anatomy and physiology of this wonderful organ—when we discovered the secondary leaves or "laminellæ," as we named them—and arrived at the conclusion that their chief function is the attachment of the hoof-wall and its inflexions—the bars—to the pedal bone, and also permitting the wall to descend during its growth in such a manner as not to disturb the extraordinary solidity of this attachment. Clark, unfortunately, in closely studying the hoof forgot that it contained anything; hence the remarkable blunders he made, and which we imagined are now known to be such. The fact is that the whole interior of the hoof has to support weight, but there are special structures which receive a much larger share than others. For instance, there is that bold cornice around the upper part of the pedal bone—the coronary cushion, which the author strangely overlooks in mentioning the elastic apparatus of the foot—which is received into a wide groove on the inner surface of the wall, and which, by its structure, its form and its position, is admirably adapted to receive the first impact of the weight during progression, and to maintain a large share of it when the horse is standing. Then there is the plantar cushion and the horny frog, one of the chief uses of which is to support the weight. The sole likewise has a considerable share in this weight-bearing, and so has the flexor perforans; one authority, indeed, boldly averred that the horse stood on its back tendons. We have experimentally separated the pedal bone from the wall by cutting through all the laminæ, and found that no amount of force we could apply was sufficient to push the foot through the hoof. We have also the evidence furnished by the existence of extensive "seedy toe" extending over a wide surface and nearly as high as the coronet, but without any descent of the pedal bone. The occurrence of laminitis, and descent of the pedal bone as a consequence, can be much more satisfactorily explained than by invoking this hypothetical weight-sustaining function of the laminæ.

With regard to the elastic properties of the foot, there are also statements by the author with which we cannot agree. He states (p. 366) that the wall at the heels "expands from the coronet to the ground surface for about the 50th of an inch; sometimes the expansion at the coronet is not so marked as it is at the ground surface, but in the majority of feet it exists." We have never been able to comprehend how the statement can be made by those who have studied the anatomy of the foot, that the lower part of the wall at the heels dilates—that this part of the hoof widens when weight is placed on the foot. It seems to be forgotten that the wall is firmly and closely attached by the laminæ to the pedal bone on its entire outer surface, and around the wings of that bone where it forms the bars. Now if the bony wings of the os pedis were flexible, we could understand the possibility of the wall opening out at its ground margin; but as they are not flexible, surely if this part of the wall moved outwards the sensitive and vascular tissues within the wings of the third phalanx would be injured. The fact is that the so-called expansion at the ground margin of the wall-heels does not exist, and cannot be shown to exist in the manner described by the author; but in saying this we are far from denying that the hoof at this part is absolutely immovable; nowhere is it so. Bracy Clark's theory of hoof expansion was grotesque, and the fact is that the hoof expands where the elastic apparatus is chiefly situated. When the weight is imposed on the foot, the impact is primarily received by the coronary and plantar cushion and horny frog. The latter, if it meets the ground, is pressed upwards against the plantar cushion which, compressed between the frog and flexor tendon, spreads outwards against the lateral cartilages, and they in their turn are pushed against the upper part of the wall, both yielding excentrically. This, in brief, is the result our researches led us to many years ago, and our subsequent experience has only confirmed them.

The author, in alluding to the anti-concussion mechanism of the foot, says nothing of the important part played by the pulpy horn cells on the upper surface of the sole, nor yet the share the zone of soft white horn uniting the sole to the wall has in this, as well as in the descent of the sole. We are sorry we cannot subscribe to his theory of the production of navicular disease by compression of the navicular bone against the yielding flexor pedis tendon and the still more yielding plantar cushion; as few bones of the limbs are less exposed to pressure than it, and if any part is exposed more than another to injury in this region of the fore foot under certain conditions, it must surely be the lever tendon as it bends over this fulcrum bone in the anterior limb. The pathology of navicular disease is not difficult to understand if the functions of the foot are sufficiently comprehended, and there are very grave obstacles to the acceptance of the author's views on this momentous question. However, we are in perfect agreement with his directions as to physiological shoeing (p. 370), which are as sound as they are simple.

There are some other points upon which we had intended to comment in this very capital book, but our interest in the subject has outrun our discretion and our space; so we must refrain, and terminate our notice by offering our hearty congratulations to Veterinary-Captain Smith for his welcome contribution to our scanty professional literature.

ARYTENECTOMY (LARYNGOTOMY) FOR ROARING. BY SIMON J. I. HARGER, V.M.D. (Philadelphia: 1892.)

ROARING IN HORSES: ITS PATHOLOGY AND TREATMENT. BY P. I. CADIOT. TRANSLATED FROM THE ORIGINAL BY T. J. WATT DOLLAR. (London: Swan, Sonnenschien and Co., 1892.)

The operation of arytenectomy for the removal of "roaring" in the horse, appears to be making progress on the Continent, and especially in the United States of America. The first of the above works on the subject is from the pen of Mr. Harger, Professor of Anatomy and Zootechnics (or Zootechny?) in the Veterinary Department of the University of Pennsylvania, and formed a paper read before the Veterinary Medical Association of that State. It treats briefly of the anatomy and physiology of the larynx, glances at the pathology of unilateral paresis or paralysis of that organ, and proceeds to describe the intra-laryngeal operation for the removal of the obstacle to free respiration—the arytenoid cartilage. The mode of operating has been already made familiar to the veterinary profession, the improvements more recently made in it being excision of that cartilage with as little removal of mucous membrane as possible, and applying sutures to bring the borders of the wound into apposition, so as to prevent exuberant granulation, which is a great obstacle to success. Minute directions are given for the performance of the operation and the subsequent treatment, which appear to have been very successfully carried out. Professor Harger states that in from three to four weeks the external wound closes, and if everything progresses favourably the internal wound will have cicatrised. The patient is ready to perform its usual work in from six to eight weeks, unless in the case of racing and trotting horses, which should have a rest of three months. In several cases on which he had operated experimentally and afterwards killed, no alteration except in the form of the glottis could be seen, and the wound was covered with a normal mucous membrane. Sometimes the healing process requires more time; there may be a cough, discharge from the nose, and slight respiratory noise during exercise; but these symptoms may disappear in three to six months. As long as there is a discharge cicatrisation is not completed. One of the author's cases made a thorough recovery in four weeks. He says: "The results of arytenectomy have varied with different operators. While it may be complicated by traumatic pneumonia and other accidental conditions, the

main obstacle to its success has been 'proud flesh.' For this I do not believe we should blame the operation itself, but rather the manner in which it is performed. It has been my experience that when a large portion of the arytenoid was left *in situ*, exuberant granulations almost invariably followed; when only a small portion of it was left, or when it was completely disarticulated, the wound healed without 'proud flesh.' It is easy to see that the vascular structure of the cartilages, as well as the constant movements of the portion which is left, will act as a source of irritation and prevent cicatrisation." He mentions that he has had four cures out of six operations, the two unsuccessful ones being the first two on which he practised the operation, and he concludes his very able essay by correctly remarking that "it is an operation which, above everything else, requires good anatomical knowledge and practice, in order that it may be performed with skill and success; and while this success is not yet established, it is, however, sufficiently promising, and the benefits that might be derived from it appear to be sufficiently remunerative to induce veterinary surgeons to give it a thorough trial."

We may here note that in the *American Veterinary Review* for September, veterinary-surgeons Pierce and Butler, of Minneapolis, relate that they operated on a noted trotting horse in January last; it won a race on July 4th in three heats without roaring or being distressed, and without being in very good condition; it ran again on the 7th, and was second, though it might have been first had they not been afraid of lowering its mark. It has since been trotting in the Montana Circuit. "We operated on St. Omar (a running horse by St. Blaise, dam Olitippa, by Leamington), on June 30th; he was a bad roarer, making quite a noise while walking. He can trot and gallop slowly now without making a sound, and is to all appearance cured."

The second work is a translation of Professor Cadiot's little brochure on the operation, which we noticed some time ago. The translation is fairly well done, but the title is misleading and not that given by Cadiot, which is *Traitement Chirurgical de Cornage Chronique*; he scarcely alludes to pathology. We have elsewhere described Cadiot's success with the operation, which has been very favourable. In the *Annales de Méd. Vétérinaire* of Brussels for September, is a most instructive account by Professor Hendrix, of the veterinary school in that city, of a tour of inspection of the continental veterinary schools, and in describing that of Alfort he casually mentions that Cadiot had shown him the larynx of a horse that had died of colic, and upon which "arytenoidectomy," as it is called in French, had previously been performed. The operation had been perfectly successful, and this could be easily inferred from the regularity of the cicatrice.

Proceedings of the Royal College of Veterinary Surgeons and Veterinary Medical Societies, etc.

ROYAL COLLEGE OF VETERINARY SURGEONS.

(Concluded from Page 218.)

SPECIAL MEETING.

A special meeting was held to consider the following notices of motion

1. By Professor THOMAS WALLEY:

"That students who have not attained the age of twenty-one shall be allowed to present themselves for the 'C' Examination, and if they pass the diploma be retained until they are of age."

2. By Professor PENBERTHY:
"That after the appointment of the next Examining Board a written examination of the several classes shall be instituted."

3. By Captain RAYMOND:
(1) "That on and after the 7th September, 1893, students who enter the veterinary schools shall, prior to their first professional examination by the Royal College of Veterinary Surgeons, produce a certificate that they have passed the Preliminary General Educational Examination of 1st January, 1892, of the General Medical Council, or produce an educational certificate recognised by that body."
(2) "That after the 7th April, 1895, no student shall receive the diploma of the Royal College of Veterinary Surgeons until he proves to the satisfaction of the Council of the said College that he has studied at one or more recognised veterinary schools for a period of not less than four years. No student at a recognised school on or before the 7th April, 1892, shall be affected by this resolution."
(3) "That after the 7th April, 1895, each student who is a candidate for the diploma of the Royal College of Veterinary Surgeons shall, during his academical course, be subjected to and pass four examinations. No student at a recognised school on or before the 7th April, 1892, shall be affected by this resolution of the Council."

Veterinary-Captain RAYMOND moved—"That on and after the 7th September, 1893, students who enter the veterinary schools shall, prior to their first professional examination by the Royal College of Veterinary Surgeons, produce a certificate that they have passed the preliminary general educational examination in force on the 1st January, 1892, of the General Medical Council, or produce an educational certificate granted in Great Britain or Ireland recognised by that body." It would be seen that he had modified the motion somewhat in order to meet the views of some members of the Council.

Veterinary-Colonel LAMBERT seconded the motion.

Professor WALLEY said that Captain Raymond's motion as amended read, "Certificates granted in Great Britain or Ireland." He objected to the alteration of the motion, because they got students from the Colonies, India, America, and other places, and he thought it would be very unfair to cut out all those certificates. Surely if they were good enough for the General Medical Council to accept, they were good enough for them. He therefore moved as an amendment, that the motion as originally drafted be accepted.

Professor PENBERTHY seconded the amendment.

The PRESIDENT asked if Captain Raymond would agree to that?

Veterinary-Captain RAYMOND said he would accept it. He would put it in a verbal alteration, however, so that his motion would read, "That on and after the 7th September, 1893, students who enter the veterinary schools shall, prior to their first professional examination by the Royal College of Veterinary Surgeons, produce a certificate that they have passed the preliminary general educational examination in force after the 1st of January, 1892, of the General Medical Council, or produce an educational certificate recognised by that body."

Veterinary-Colonel LAMBERT seconded the motion.

Mr. J. F. SIMPSON asked to whom the certificates were to be produced?

Professor WALLEY: To the secretaries.

Mr. J. F. SIMPSON said there was a rule with regard to the examination which said that no student should have his diploma until he had passed an examination of the College of Preceptors. Certain certificates had been sent by the examiners to the Council in Class C, and he hardly thought they would

be satisfied to accept from any of the schools a statement that those gentlemen had been passed by any examining body. The certificates were a disgrace to any Board-school boy in the third standard, and it was an insult to the Council to be told that those men had passed the College of Preceptors before they entered the different schools either in England or Scotland. He therefore asked Captain Raymond to say distinctly that those certificates should be produced to the Council of the Royal College of Veterinary Surgeons before the students were allowed to go up for examination.

Veterinary-Captain RAYMOND took it for granted that the certificates and other requisite documents would be handed to the Secretary of the Royal College of Veterinary Surgeons in the usual way.

Mr. J. F. SIMPSON said he knew that that was Captain Raymond's intention, but he wished the resolution to be so worded that there would be no mistake about it.

Professor WALLEY said the Colleges never received the men's certificates, nor did they say they had passed such and such an examination. The men had to present their certificates to the respective secretaries, and the Colleges had no more to do with it than the Council.

Mr. THATCHER (Solicitor) said the regulations for the examination of veterinary students in general education stated, "Students who enter the veterinary school shall, prior to their first professional examination by the Royal College of Veterinary Surgeons, undergo an examination in the undermentioned subjects, or produce a certificate."

Veterinary-Captain RAYMOND said he had copied the wording from the Act.

Mr. J. F. SIMPSON said the regulations stated the men should pass an examination; he maintained that every one of them did not pass an examination.

Mr. THATCHER said they were bound to produce some certificate.

Mr. J. F. SIMPSON said that any principal of a school would discover that those men ought never to have been admitted by the Royal College of Preceptors.

Professor WALLEY objected to the statement made by Mr. Simpson. The principals of the schools had absolutely nothing to do with the educational business.

The PRESIDENT said that perhaps Mr. Hill would tell them whether he received the educational certificate before the student went up for his first examination.

Mr. HILL (Secretary) said he did not. The only certificate that he received was that of birth.

Professor WALLEY said that no student in the Edinburgh or Glasgow schools went up for his first examination before handing his certificate to the Secretary, Mr. Rutherford. The schools had nothing to do with it.

Veterinary-Captain RAYMOND said he would amend his motion by adding the words—"To the Secretary of the Royal College of Veterinary Surgeons."

The motion as amended was then put and agreed to.

Veterinary-Captain RAYMOND said his next motion was—"That on and after the 7th April, 1895, no student shall receive the diploma of the Royal College of Veterinary Surgeons until he proves to the satisfaction of the Council of the said College, that he has studied at one or more of the recognised veterinary schools for a period of not less than four years. No student at a recognised school, on or before the 30th January, 1893, shall be affected by this resolution." It would be noticed he had introduced an alteration in the date, as it gave an extra period. It was a loss of time in one sense, but it got rid of the opposition of the schools, who said they could not manage unless the extra period was granted.

Professor WALLEY seconded the motion, which was agreed to.

Veterinary-Captain RAYMOND said his next motion was—"That after the 7th April, 1895, each student who is a candidate for the diploma of the Royal College of Veterinary Surgeons shall, during his educational course, be subjected to and pass four examinations. No student at a recognised school, on or before the 30th January, 1893, shall be affected by this resolution of the Council."

Professor WALLEY seconded the motion, which was agreed to.

Motion by Professor Walley.

Professor WALLEY moved—"That students who have not attained the age of twenty-one shall be allowed to present themselves for the 'C' examination, and if they pass the diploma, shall be retained until they are of age." Up to a certain period, students were allowed to present themselves for the above examination if they had attained the age of twenty. About two or three years ago that rule had been altered, and they were not allowed to present themselves until they had attained the age of twenty-one. In common with other teachers, he saw very great hardships in the matter. Men who had not attained the age of twenty-one within a few weeks, were kept back for a period of, in some cases, six or nine months. He asked that those men should be allowed to present themselves, but that their diplomas should be retained. He wished to make a slight alteration, so as to make it read "Students who have obtained the age of twenty, but not twenty-one," so that no student under twenty could be admitted.

Mr. BURNETT seconded the motion.

The PRESIDENT said there was no objection to the mover altering the motion.

Mr. TRIGGER said that the objection to Professor Walley's motion was that it allowed every student, when he was twenty, to go up for his examination, so long as he did not apply for his diploma. That was what the Council had objected to, and they had altered it to twenty-one. He therefore moved as an amendment that the bye-law remain as it was.

Mr. SIMPSON seconded the amendment.

Veterinary-Colonel LAMBERT said he should vote for the bye-law remaining as it was, because he thought that the dignity of the profession required that a man should be of age before he presented himself for his diploma.

Professor PENBERTHY said he had often witnessed the great inconvenience spoken of by Professor Walley, and he would like to be able to support him if it were possible, but he saw very great difficulties. He would not give more than six months' limit at any rate. If the Council, without losing any of its dignity, could arrange the matter according to Professor Walley's views, he should be very glad; but there were certainly difficulties as regarded giving a man a diploma before he was twenty-one. Of course, they could not give him any rights.

Mr. HUNTING opposed Professor Walley's proposition for the reason that if they made the age nineteen, there would be the same hardship for the men who were a week off that age. The Council had decided, and the profession had approved, that twenty-one be the age. What was the objection to letting a student pass the examination, and retain his diploma as Professor Walley suggested? It was this, that he would come away from a school at fifteen, and go to College a boy; he would know nothing of animals or men, except what he got through his books. They would be manufacturing bookworms—the worst objects on the face of the earth. He must strenuously object to the boy being forced by the arrangements of the College to go from school at fifteen to the Veterinary College, and get into practice simply from book knowledge, and without any knowledge of men or things.

Mr. J. F. SIMPSON said that if Professor Walley's motion was carried in the orm in which it appeared on the paper, a student, if 'cute enough to squeeze through his examination, could get through at the age of fourteen, for that matter.

Professor WALLEY said he had amended it so as not to allow of a student entering before he was twenty.

Mr. J. F. SIMPSON said that if Professor Walley's alteration were sanctioned by the Council he saw the objections which Mr. Hunting had pointed out. A hard and fast line must be drawn somewhere.

The amendment that the bye-law should stand unaltered was put and agreed to.

Motion by Professor Penberthy.

Professor PENBERTHY said the motion of which he had given notice, and which he now moved, was—"That after the appointment of the next Examining Board a written examination of the several classes shall be instituted." He had no desire to interfere with any arrangements by laying down any date as to the next Examining Board or any other. They had agreed to the principle of written examinations, which was the object of his proposition, and the earlier it came on the better.

Mr. J. F. SIMPSON seconded the motion.

Professor WALLEY moved that it be not passed. He did not quite understand Professor Penberthy's object in the matter. The principle had been passed, and it was agreed that they were to have a written examination with all students who joined after the 30th December, 1893; that was, all the students who came up under the new regulations. Now they were going to introduce a thing that would interfere with students already in the Colleges, or who might join before that date. Hitherto a thing of that kind had never been forced upon the profession. The prospectuses of the Royal Veterinary College had been issued, in which there was no mention of a written examination, and men who were thinking of joining the profession and were preparing for it would naturally say, "Why have you altered this at the last hour?"

Mr. HUNTING said he intended to support the principle, but not quite the arrangement proposed by Professor Penberthy. He noted the objection pointed out by Professor Walley—at any rate, he would paraphrase his words in his own way—namely, that until the new preliminary examination, or, in other words, until the new educated student entered the profession, it would hardly be fair to ask him to undergo a written examination.

Professor WALLEY said that was not his motion.

Mr. HUNTING suggested, in order to provide against that, that they should adopt a written examination immediately the student entered the profession—that was to say, at the May examination of 1894. It was an extremely difficult thing to get any body which had gone in one groove for forty years to go in another groove. They would find that the introduction of a written examination required a great deal of organising. One thing occurred to him at once—where should they hold it? That room would not hold Class "A" at a written examination. If they hired a room there was extra expense. If they tried to examine Classes "A," "B," and "C" on one day, where would they get the hall? It would cost them £5 a night. By way of getting gradually into the thing, if they put a written examination on for Class "A" in May 1894, and gradually increased it so that Class "B" did the written examination the next year, and Class "C" the next, the whole thing would be in working order for the new four years' scheme. In that way they would do away with nearly all the practical difficulties, and the almost impossible event of the uneducated student doing a written examination before he could write. He proposed that May, 1894, be fixed as the date of the first examination.

General Sir FREDERICK FITZWYGRAM saw no reason why they should pass uneducated students for the next three years. He supported the immediate adoption of the written examination. There would be no hardship, as the men were supposed to have passed an educational examination, and it would give them an opportunity for finding out whether that examination had been good or not.

Mr. J. F. SIMPSON said he wished to point out the difference between the four years' scheme and the proposition made by Professor Penberthy. Professor Penberthy had proposed that this should come into operation after the next appointment of Examiners, but if they adopted the four years' scheme for the professional education, it said that no student of the College when the scheme was sanctioned by the Council was in any way affeeted by it, and an interval of three years was to be passed between the passing of the scheme and its coming in force. Moreover, Professor Walley said that in the prospectuses issued by the principals of the Colleges, they had not intimated to intending students that they would have to be examined in writing; neither was it necessary, if they looked to the regulations for the professional examination, because they said that students should be "examined," and it was for the Council to dictate in what way the student should be examined.

Veterinary-Captain RAYMOND thought it would be a good thing for the students themselves. At one time they were told that if the students had a written examination it would be very much better for them. Perhaps the principals of the schools had changed their views now. The only drawback in adopting the written examination was the question of expense. If they had the written examination they would have greater expenses, and how were they going to meet them?

Professor WALLEY said that if they adopted the motion it was certainly a very violent proceeding. It had always been the rule of the council that no further rules should be made until due notice was given to all parties concerned.

Mr. HUNTING said the time was May, 1894.

Professor WALLEY said that Professor Penberthy did not agree to that. He seconded the amendment that the date of the first examination be May, 1894.

Veterinary-Colonel LAMBERT opposed the amendment, because he quite agreed with what Sir Frederick Fitzwygram had said, that students were supposed to present their proper certificates when they entered the College; and he saw no objection to the students being subjected to a written examination.

Mr. HUNTING said his amendment was, "That on May, 1894, a written examination be adopted at the 'A' Examination, and that at each successive examination the classes 'A,' 'B,' and 'C' be respectfully submitted to a written examination."

Professor WALLEY seconded the amendment, which was put to the meeting and lost. The original motion was then carried.

Notice of Motion.

General Sir FREDERICK FITZWYGRAM handed in the following notice of motion with regard to alteration of Bye-law 9: "That the President be requested to arrange the agenda after the minutes have been read, and sign any such order as may enable the more important business to be transacted earlier than is at present the case."

On the motion of Mr. TRIGGER, seconded by Professor PENBERTHY, a vote of thanks was unanimously accorded to the President for his conduct in the chair.

SPECIAL MEETING OF COUNCIL, HELD JULY 29TH, 1892.

Mr. J. W. MULVEY (President) in the chair.

Present: — Veterinary-Colonel Lambert, Veterinary-Captain Raymond; Messrs. Barford, Fraser, Hartley, Oliphant, Wheatley, and Wragg; Mr. G. Thatcher (Solicitor), and Mr. A. W. Hill (Secretary).

The SECRETARY read the notice convening the meeting.

The SECRETARY stated that he had received letters from Messrs. Simpson, Taylor, and Mason, regretting their inability to attend the meeting.

On the motion of Veterinary-Captain RAYMOND, seconded by Veterinary-Colonel LAMBERT, the confirmation of the minutes of the last quarterly meeting was postponed until the next quarterly meeting.

On the motion of Mr. FRASER, seconded by Mr. HARTLEY, the minutes of the previous special meeting were taken as read and confirmed.

The PRESIDENT said that the object of the present Council meeting was for the purpose of confirming alterations of certain bye-laws passed on July 21st.

Veterinary-Colonel LAMBERT (in the absence of Professor Penberthy) moved the confirmation of the following motion standing in that gentleman's name:—"That after the appointment of the next Examining Board a written examination of the several classes shall be instituted."

Mr. HARTLEY seconded the motion, which was agreed to.

Veterinary-Captain RAYMOND moved that the following resolutions standing in his name be confirmed:—

(1.) "That on and after the 7th September, 1893, students who enter the veterinary schools shall, prior to their first professional examination by the Royal College of Veterinary Surgeons, produce a certificate that they have passed the preliminary general educational examination in force after 1st January, 1892, of the General Medical Council, or produce an educational certificate recognised by that body to the secretary, Royal College of Veterinary Surgeons."

(2.) "That after the 7th April, 1895, no student shall receive the diploma of the Royal College of Veterinary Surgeons until he proves to the satisfaction of the Council of the said College that he had studied at one or more recognised veterinary schools for a period of not less than four years. No student at a recognised school on or before the 30th January, 1893, shall be affected by this resolution."

(3.) "That after the 7th April, 1895, each student who is a candidate for the diploma of the Royal College of Veterinary Surgeons shall during his academical course be subjected to and pass four examinations. No student at a recognised school on or before the 30th January, 1893, shall be affected by this resolution of the Council."

Mr. WRAGG seconded the motion, which was agreed to.

NATIONAL VETERINARY ASSOCIATION.

THE Annual Meeting of this Association was held in the Municipal Chambers, Glasgow, on Aug. 3rd and 4th, under the Presidency of Professor McCall, F.R.C.V.S. There was a considerable number of members present, and apologies for non-attendance from many more were read by the General Secretary, J. Malcolm, F.R.C.V.S., at the commencement of the first meeting.

The PRESIDENT introduced Bailies Brechin and Guthrie as representatives of the city of Glasgow. These gentlemen welcomed the Association to their city, apologised for the absence of the Lord Provost, hoped that some practical good would be derived from the meeting, and spoke of the high esteem

in which the President was held in and beyond Scotland. A vote of thanks was unanimously awarded them for their presence and courtesy.

It was decided that Manchester should be the place of meeting next year, and that Mr. Faulkner of that city should be the President.

Messrs. F. W. Wragg and J. Malcolm were re-elected Treasurer and Secretary respectively; Vice-Presidents and Council were elected, and Professors Axe and McCall were elected Life Vice-Presidents.

Rule 53 was altered to read: "The Provisional Committee shall consist of 24 persons, besides the Council of the Association, the members of which shall be *ex-officio* members of the Provisional Committee."

The Secretary's report was taken as read. From this it appeared that last year the numbers were 280, but since then 14 resigned, 5 died, and 20 had been struck off, leaving 268. Since the meeting we have been informed that 21 new members have joined, so that the number now is 289. In addition to £200 in Consols, there was a balance in hand of £119 5*s.* 11*d.*; now there is £168 4*s.* 4*d.*

The PRESIDENT then delivered the following address:—

Gentlemen, my first duty, and a most pleasing one it is, is to tender my sincere thanks to the members of the National Veterinary Association, for the honour which they conferred on me a year ago, at Doncaster, in electing me their President. It is an honour I can assure you I value much, and I hope that the office of President of this, the greatest and most important of the many Veterinary Associations, shall ever remain a coveted position, and one worthy of the most gifted in the Veterinary Profession. A year ago my talented friend, Professor Axe, of London, gave you a glowing and graphic description of the origin of, and progress made by, this Society during the past nine years of its existence, so that I need not disturb the pleasing reflections then made by a recapitulation, but will confine my remarks to a review of some of the more important objects in which the profession during the last year have played an important part.

Seventh International Congress of Hygiene and Demography.

The members of this Congress, under the distinguished Presidentship of His Royal Highness The Prince of Wales, assembled in London for five days, on the 10th August, 1891. A section was formed (under the direction of Sir Nigel Kingscote, K.C.B.,) on "the Relations of the Diseases of Animals to those of Man." As early as the month of February, Professor Brown, C.B., Director of the Veterinary Department of the Board of Agriculture, and myself (as President of the Royal College of Veterinary Surgeons), were requested to accept the office of Vice-Presidents. As members of Council, Professor McFadyean, Dr. Geo. Fleming, and Mr. Clement Stephenson were also invited to co-operate. Professor Chauveau, Paris, and Duguid, London, contributed papers on "Anthrax and its relations to workers in various trades"; Professor Leuckart, Leipsic; and Brown, London, on "Animal parasites communicable to Man;" and Dr. Fleming, London, on "The Propagation and Prevention of Rabies." To this Congress delegates were present from almost every continental country and state; and universities, colleges, hospitals, county councils, corporations, societies scientific, medical, sanitary, statistical, architectural, and general were all represented. It would be out of place for me to eulogise the work done, but no disinterested and worthy critic can peruse the papers read and the discussions thereon which followed, without feeling convinced that the members of the veterinary profession ably sustained their part alongside their medical *confréres.*

Veterinary Department, Board of Agriculture.

During the past year this department, by an outbreak of "Foot and Mouth Disease," has been put on its trial, and its greatest opponents have been

forced to admit that it has nobly responded to the test. As you are aware, on 4th February last, a number of Danish cattle on sale in the London Metropolitan Cattle Market, were found exhibiting symptoms of this disease. The gates of the market were closed and all the animals within the premises slaughtered, but notwithstanding such vigorons measures, on account (as it afterwards transpired) of animals in the *incubative stage*, having been exposed on a previous market day and removed to various places, the disease in due course manifested itself in the cow sheds of London, and at various points in the counties of Kent, Sussex, Surrey, and Middlesex. On the 11th day of the same month, Professor McFadyean declared the presence of the disease in a byre in Edinburgh, but as far as known to me the method by which the infection reached Edinburgh has not been demonstrated. On 4th March the disease appeared among a number of fat cattle in the Moore street slaughter house, Glasgow. Its introduction to this city was clearly traceable to Edinburgh. The affected animals were brought from Edinburgh, and, in the *incubative* stage, exposed and sold in the Glasgow cattle market. From Glasgow, in animals in the incubative stage, the disease was conveyed to Settle, Leeds, and Paisley. Under direction of the Board of Agriculture and with the sanction of their proprietors, all the animals in the Glasgow slaughter house and market were killed, the gates of the slaughter house and market closed, and even after thorough cleansing and disinfecting they were kept shut and all traffic suspended for three weeks. The effect of these operations was the stamping out of the disease in Glasgow. It is six years almost to a day in February last, since we had an outbreak of foot and mouth disease in Scotland, and for two years prior (as I shall immediately show) the cases were few in number, and as there are now many in the profession who have had no practical experience of the malady, or opportunities of observing the enormous pecuniary loss it has caused to stock proprietors in the past, I shall very briefly refer to a tabulated statement on the subject, which has been compiled by the Veterinary Department of the Board of Agriculture. The official record from 1870 reads as follows (Great Britain):—

Years.	Counties.	Fresh outbreaks.	Animals attacked.				
			Cattle.	Sheep.	Pigs.	Other Animals.	Total.
1870	84	27,254	379,395	39,714	38,407	84	457,564
1871	92	52,164	519,523	116,546	54,931	560	691,560
1877	55	858	5,640	7,405	2,099	—	15,144
1878	45	235	912	8,609	245	—	9,766
1879	29	137	261	15,681	5	—	15,947
1880	38	1,461	20,918	9,572	1,886	2	32,378
1881	49	4,833	59,484	117,152	6,330	80	183,046
1882	49	1,970	23,973	11,412	2,564	1	37,950
1883	75	18,732	219,289	217,492	24,332	32	461,145
1884	55	949	12,186	14,174	1,860	1	28,221
1885	10	30	354	34	30	—	418
1886	1	1	10	—	—	—	10

A brief analysis of this table shows that in the years 1870 and 1871 there were 80,000 separate outbreaks, affecting 1,150,000 animals. Then there was a period of six years' cessation. Then the disease was again imported in 1877,

and continued for eight years without intermission, and without any favourable abatement, the total fresh outbreaks being 29,175 and the number of animals attacked 783,597. In the year 1885 the outbreaks were only 30, and the number of animals attacked 418. These outbreaks took place early in the year, and the disease was again "stamped out," but, as you observe, at an enormous loss. About nine months after the disease had disappeared—viz., in the year 1886—there was an outbreak involving ten cattle, and as I had personally to deal with this solitary outbreak, and, moreover, as it is of great interest and value in proving that the microbes of foot and mouth disease can be conveyed to this country in foreign straw, I shall briefly state the facts. On the 1st February, 1886, I received a telegram from the Privy Council Office instructing me to proceed to Brunton Barns, Markinch, Fifeshire, and investigate a suspected outbreak of foot-and-mouth-disease. As there had been no reported cases of foot and mouth in the three kingdoms for nearly a year, I concluded that it was a "false alarm," but to my astonishment, when I arrived at the farm, I found the whole of the animals presenting the characteristic lesions of the malady. To enquiries I ascertained that the affected cattle had been bought at an auction mart four months previously, that there had been no cattle on the farm for nearly a year before they were brought on it, that the bullocks entered the feeding courts the day of their arrival and had never been out of them or in contact with any other animals. Observe there had been no cases of foot and mouth in England, Scotland, or Ireland for nearly a year, and no known cases elsewhere in these kingdoms at the time. At a loss to understand from whence the infection came, as I am no believer in the "spontaneous generation" of a specific disease, I made a careful examination of the premises, and coming upon a few bales of Dutch straw, I said to the cattleman, "What are you doing with foreign straw?"—"Master bought it to thatch the corn stacks, and it came from Burntisland." "Have you fed or bedded the cattle with it?"—No, but we used some of it the day the travelling mill was here thrashing, and it was just two days after that that the first bullock began to 'slaver' at the mouth, and the next day others 'slavering' made us suspect that we had got foot and mouth." "What use had you for straw at the thrashing mill?"—"Well, the engine and mill were placed right in front of the sparred gate leading to the first feeding court (in which there were five bullocks), and as the mill was blowing her chaff among the bullocks the master told us to pile up the foreign straw on the outside of the spars and prevent the chaff blowing over, and this we did." "Did the bullocks get to the straw?"—"Yes, they did; and they pulled the straw through the spars with their tongues and chewed it." As I have already stated, foot and mouth had no existence in the three kingdoms at the time except on this solitary farm, and all the ten animals on it were affected with the malady, and I feel convinced that the straw was the vehicle of infection in this outbreak. By an order of the local authority, and on the advice of the local inspector and myself, the animals were slaughtered the same evening, and from that day to the present outbreak (now also stamped out), which commenced in February last, a period of six years, the disease had no existence in this country. It cannot be too widely known that foot and mouth, like rinderpest, is not an indigenous but imported disease, and that the conditions necessary for its existence do not exist in this country. It is the most infective of all bovine diseases, and although the mortality is less than in any other specific disease, still the pecuniary loss for the time it is allowed to prevail is undoubtedly the greatest, and the lowest calculation of actual loss per head is £1 10s., and that, too, when there are no deaths. Waves of this disease, since its first introduction to this country in 1839, have regularly swept over the land, lasting on an average of six years with intervals of three years. But through the organisation of the veterinary department the outbreak of 1886

was cut down within one week, and at an expenditure of less than £300, and the outbreak of 1892 has been extinguished within six months. By the energetic manner with which Mr. Chaplin, Minister of Agriculture, has grappled with this last outbreak, he has saved millions of money to stock proprietors, and shown to a demonstration that a State Veterinary Department and educated veterinarians are worthy of greater consideration and recognition than has as yet been universally accorded to them in this country.

Pleuro-Pneumonia Epizootica.

This is another of the bovine maladies which the veterinary profession through the Board of Agriculture have staked their reputation in extinguishing in this country. It is also an important disease, and made its first appearance in 1841. Prior to the passing of the Contagious Diseases (Animals) Act in 1860, the annual loss from this disease to the dairymen of this city on an average of twelve years reached the large sum of £4,556. In Glasgow, thirty years ago, this disease existed in almost every dairy within the city. Probably there was no other city in which this disease was more prevalent—in fact, one dairyman alone who had 1,100 cows, placed all his sound cows at purchase amongst his worst affected, so as to get them to take the disease, and those that recovered be bred with; but by enforcing the orders of Council it has been gradually controlled and curtailed, and for the past three years there has not been a single case of contagious pleuro-pneumonia in any cow-shed within the municipality of Glasgow. There are two methods of dealing with the disease, viz., inoculation and slaughter. The first method belongs to a profession, but, being only a preventive measure and not curative, in order to its efficiency, slaughter of all affected and in-contact animals would require to proceed alongside inoculation of all other cattle, and even then, for reasons which I have not time to enumerate, a certain amount of uncertainty would exist as to its complete extinction. Undoubtedly the quickest and most certain method of dealing with this malady is slaughter and full compensation. In short, the method recommended by certain members of the profession to the Select Committee of the House, and now carried on under the direction of the Board of Agriculture. And just as in the case of "rinderpest" and "foot and mouth disease," so soon as the last affected animal is destroyed (and to all appearance that will be within two years), we will hear no more of the malady until it is reimported.

Tuberculosis.

This disease still continues to decimate our herds, and will continue to do so until it is taken up by the Veterinary Department, and dealt with on the same lines as contagious pleuro-pneumonia. And, really, when we know that the malady can be conveyed in the milk and flesh of affected cattle to the human subject, the wonder is that the one is dealt with and the other left alone. That it will be more difficult to deal with than pleuro-pneumonia or foot and mouth there cannot be a doubt, and that we will stamp it out is not my opinion; but we have reason to hope that its spread could be greatly curtailed, and the chances of its transmissal to the human subject much lessened. So soon as pleuro-pneumonia is stamped out, I trust the Board of Agriculture may be induced to deal with tuberculosis, and also with swine fever.

Royal College of Veterinary Surgeons.

This corporate body, in which we are all so deeply interested, has of late manifested a vitality in the way of change or reform which must for good or evil seriously affect the profession. At the last meeting of Council, it was arranged that the period of study should be extended from three to four sessions of eight months each, and that the matriculation examination should

be made identical with that for admission to the medical profession. I cannot say that I have any serious objections to these alterations, except on the score of expense to the graduates, and the indirect closing of the door of admission to the profession of a large number of most deserving young men. Undoubtedly our students, to a large extent, will now be drawn from a different source than heretofore, and, although their parents may be in possession of greater pecuniary means, it is questionable if their sons, as students, will be in possession of greater natural aptitude to learn veterinary science and art, and to meet its demands in everyday life. A student who has few opportunities of mixing with and studying the habits of the lower animals and their management in his schoolboy days, although his scholastic attainments may be very considerable, is undoubtedly handicapped in the race for position as veterinary adviser. The Council of the Royal College of Veterinary Surgeons have also, as you are aware, applied for an amended charter, and with most of the demands made and alterations suggested I concur; but on reading the speeches delivered, and the letters which have been written on the subject and published in the *Veterinary Record*, it appeared to me that a longing desire had taken possession of certain individuals, not so much to advance the true interests of the profession, as to be able to control the institutions affiliated to the College, and to coerce those individuals who differ from them.

Knowing the evil which has resulted from such a course in the past (compelling the late Professor Dick to ignore the Royal College of Veterinary Surgeons, and to establish and maintain till his death an independent Board of Examiners in Edinburgh for granting diplomas), Professor Williams and myself felt constrained to petition the Crown for the insertion of a clause in the desired charter, giving a power of appeal to the Privy Council should the teaching colleges consider any bye-law made by the Council of too restrictive a character, and opposed to the best interests of the schools, the public, and the profession. In taking this step, I disclaim any desire to frustrate the onward progress of the profession, or to dictate to the members of the profession through their Council, but to avert a catastrophe which will assuredly happen should the teaching colleges be driven too rapidly by the Council and revolt. The Royal College of Veterinary Surgeons has no more direct control over the teaching colleges than the teaching institutions have over it, and, such being the case, a "reference clause" could only act in one way, viz., in cementing and keeping the licensing and teaching institutions together as one corporate body. I am not sanguine of such a clause being granted, seeing that the original and all supplemental charters have conferred on the Council the power to make bye-laws *subject to no review*; but I wish to be in a position to show, should occasion arise and circumstances necessitate a movement for a Scottish charter, that personally I did, as in the past, what I could to maintain a united profession. It may not be known to all, but it is no less the fact, that shortly after the demise of the late Professor Dick, a movement was made by those interested in the Dick college for obtaining a Scottish charter; and but for the strenuous opposition, and at the same time conciliatory spirit, shown by the opposition—among whom I counted as one, it would have been obtained. But, as it was, concessions had to be made by the Council of the Royal College of Veterinary Surgeons. That no occasion may arise to disturb the harmony which has existed since the Edinburgh Veterinary College returned to the fold is my earnest wish, and in it I am sure my professional brethren present, and every well-wisher to the veterinary profession, will join. As a *united profession*, I again welcome you to Glasgow, and trust that the acquaintances renewed, and the friendships formed, at this, our tenth annual gathering, will enable all of us to take a truer and, if possible, a deeper interest in our noble profession.

Reports from members of the investigation Committees on Milk Fever and Hæmoglobinuria were received, but as the investigations were considered incomplete the Committees were re-constituted, with the view of pursuing further researches and discussing the results next year.

The discussion on Mr. Hunting's paper on "The Veterinarian, his Position and Prospects," which appeared in last month's *Veterinary Journal*, was opened by Professor McQueen, who said:—

I am not sufficiently acquainted with the rules of the Association to know whether there are any penalties for delay in the issue of essays, but it occurs to me that our essayist on this occasion is deserving of any pains and penalties that there may be for the somewhat tardy delivery of his paper. It may be that our essayist is troubled with a similar complaint to that of Mark Twain, who, on being charged with being somewhat tardy in making up his mind, excused himself by saying that he had a large mind. It may be that our essayist has a large mind. When I first saw the title of the paper in the advertisement I was very much inclined to exclaim, "The Lord gie us a guid conceit o' oursels." To discuss the veterinarian's position and prospects is surely to enter upon a practice of introspection not usual in the veterinarian. In thinking over what I should say on an occasion of this kind, I have been reminded of a remark make by Captain Absolute to his man Fag—"What shall you say, you blockhead? Say no more than is necessary." I shall attempt to make my remarks as brief as possible, and say no more than is necessary. In entering upon a discussion on an occasion of this kind, I think it is customary to award the essayist a few remarks of praise for his "splendid paper," his "genuine efforts," and so on. I am sorry I cannot subscribe to that. The paper that we have to discuss to-day does not reach the usual character, the usual standard of ability which is characteristic of the productions of our friend Mr. Hunting. I do not think the paper does him justice. It may be that owing to his associations in that remarkable Council, his time has been so much occupied that he has had none to spare to devote to this work. It occurs to me that he has not really given the subject that consideration and that care that he has given to his other work. In glancing briefly at this paper, I will take the point that I consider the most important. The second paragraph of it is devoted to overcrowding, and the third paragraph is devoted to overcrowding. If you turn to page 5 you will get overcrowding in a different dress. The essayist bewails the ignorance of the owner of stock and the worse ignorance of the animal attendant, and he gives one or two illustrations of the advantages to be derived from the practice of prevention. He also speaks of how the difficulties in the profession might be easily remedied. All that is wanted, he says, is a very little addition to the training. At page 8 you will see the essayist in a different view. He there particularises the little addition or alteration that is wanted. "To make our graduates fit for both offices only requires a more direct and practical application of their teaching to animals in health. Passing on, he gives a historical sketch of the profession in England, and he particularly gives that praise which I think is highly deserved to the Agricultural Societies for their patronage of the Colleges. He then goes on to speak of what the profession might be engaged in, such as the diseases of birds. This certainly is a new department, and I suppose a scientific gamekeeper is only a matter of time. He will have the care of pheasants, farmyard poultry, caged birds and so on. "Canary doctor" will be a high sounding title, and I do not see any reason why a veterinarian should not extend his knowledge to the diseases of fish, and even of insects. Insects might really claim attention, because there is no doubt that a large number of diseases are due to insect pests; and, if we proceed logically, seeing that insect pests cause many of our disturbances, there is no reason why we should not first of all seize the cause, and then

study the effect. Then we have only a step further to take and we come to bacteria. What a noble employment for a veterinarian in his idle moments to study bacteria and their classification. That is what is done by those who are dubbed scientists, and there is no reason why a veterinarian should not employ his time in selecting some little species of bacterium and working out its life history, It is really difficult to be serious when we think of such things. At page 4 the essayist refers to preventive medicine, and he speaks of John Gamgee, of Edinburgh, who had been "for years crying in the wilderness." Then he praises the central authorities, the Army Veterinary Department, and so on. With regard to the present position of the veterinary profession he says, "Our present position, I think I may safely say, is a very satisfactory one," and on page 7 there is a similar statement—it is simply a reiteration. In another paragraph on page 5 he refers to the direction in which we are to advance, but he simply recalls the former statements in different words. He refers to special appointments to the Board of Agriculture and local authorities; appointments as meat inspectors, sanitary inspectors, and army veterinary surgeons; and he finishes up with the disappearance of the registered practitioner. In the last page of the essay he has a new field, preventive medicine and hygiene, and he concludes with some questions for discussion.

Those who have read the paper carefully, which I have had very little chance of doing, owing to the shortness of the time since it has been issued, will have observed that the essayist looks for the salvation of the profession in hygiene and in preventive medicine, and in some developments of the education of the veterinarian. Let us glance at these things. There is no doubt that to estimate the present position of the veterinarian properly we should pay some attention to the condition of the profession in the past, and that Mr. Hunting has already done in his historical sketch. There is only one remark I should like to make in this respect, and that is that those who have paid some attention to the veterinary history of the past will know that many important things were done in past years. There are two points to which I would specially refer. In regard to preventible diseases, pleuro-pneumonia, cattle plague, and foot and mouth disease, I may mention that the treatment adopted at the present time for pleuro-pneumonia, the slaughter treatment, was in vogue late in the seventeenth century and early in the eighteenth. The very same system that is now in practice at the instance of the Board of Agriculture was carried out under the direction of the physician of Pope Clement XI. The very same system of slaughtering animals, isolating the suspected, destroying the carcases, slashing their hides and burying in pits covered with quicklime, was then adopted. What more do they do to-day? In the first quarter of the eighteenth century, a disease then dubbed cattle-plague appeared in Switzerland, but judging from the symptoms it was no doubt pleuro-pneumonia, and you will find that the celebrated physician and physiologist, Haller, gave the first scientific description of the symptoms and of the natural history of the disease. He recognised that it was contagious, and he also referred to the question of its spread, and related a good many experiments. So that if we had nothing else to look back upon but these two things we should still have some honour to pay to the past. Although these persons may not have been veterinarians, they still deserve our thanks and our gratitude.

With regard to the veterinarian, in this country no doubt the first thing he thinks about is to make a living. That is the chief end of man, I think, in the present nineteenth century. Man must live, though he be a veterinarian. Having obtained a livelihood, the next thing, no doubt, is that he wants to rise in the world. Most people start persuaded that their proper vocation is to rise somewhat in the world. He is no doubt well tutored in the law,

"Do unto others as ye would that they should do unto you," but after being some time in the profession, which varies according to the district, and according to the amount of opposition, he descends to the bed-rock of everyday life, and the law becomes "Do unto others as they do unto you." That is a marked drop in the moral aspect of everyday practice.

With regard to the scientific position of the veterinarian at the present time, Mr. Hunting says that our position is fairly satisfactory, but he does not say in what respect it is satisfactory. He does not say whether he means socially, morally, or scientifically. Perhaps he means all three. Scientifically I do not think we are in a very satisfactory state. A large number of diseases are very little known; we know very little about the causes or their pathology; we know too little even about the scientific treatment of a great many of the ailments of the lower animals. Even in surgery it is questionable whether we have made any very distinct advance in recent years. I do not know that there is any remarkable operation that is new. What is now spoken of occasionally as a new development in the way of surgery—opening into the abdomen—was practised during the earlier Indian surgery. Opening the abdomen, puncturing the bowel, and other operations were practised in those early times, perhaps not with the same success, but they were practised.

With regard to our moral position, I think we are a little weak in the moral side of life. We are not perhaps so bad as we were in some things. We perhaps pay a little more attention to prudence, justice, benevolence, and truth, but I am afraid we are still weak. I notice that a gentleman who read a paper a few weeks ago, which appears in the *Record* of last Saturday, seems to think that we are still weak on the side of truth. We are still a little weak in regard to temperance, but very much improved upon what we were, and it is no longer necessary in opening the session of a college for the Professor to read to the student a homily on temperance. With regard to truth, that is a touching question when it comes to the veterinarian. Other trades or callings are allowed to practise what we call trade lies, but the veterinarian is not permitted to employ that method. I am a little interested in this question, not because I have a special aptitude for lies myself, but I have been curious to know whether there was such a thing as untruth permitted. In the 18th century, lying was sanctioned by men like Jeremy Bentham and Paley (as you may remember in his book on "Evidences"), and it was also sanctioned by the poet Milton, the secretary to Oliver Cromwell, and by Samuel Johnson. It also receives a certain measure of sanction in the catechism of the Council of Trent. There are certain restrictions, but there is a certain licence permitting people to indulge in what may be called privileged lying. I do not say that we should start this in the new educational scheme, but when public men sometimes upbraid us for not being always truthful, it is as well to be able to reply to such complaints by saying that professional lying or privileged lying is allowed to a certain extent to everybody. I could quote extracts from the authors I have mentioned, but it would be only taking up your time.

With regard to social position, that is another everyday sore to many veterinarians. A great many veterinarians wish to rise in the world; I suppose every man has a right to think for himself, and no doubt it would do the profession as a body considerable good if we all had somewhat higher and nobler aspirations; at the same time, in a mixed body, such as the veterinary profession, it is impossible to get them all to think alike on this matter. There is, however, one thing that occurs to me at the present moment with regard to the rise in the social scale, and that is, the difference between the medical man and the veterinarian. Everyone allows that the medical man occupies a better position, socially, than the veterinarian, and many may ask "Why should this continue?" It is not because of the professional difference—a

difference in the professional education—it is not because the medical man knows more of pathology or more of medicine or more of surgery; it is because his general education is superior to that of the veterinarian; he is acquainted with literature, history, and philosophy, and in conversations with men of the world, a medical man passes muster before the public as a better educated man than his brother veterinarian. It is owing to defects in preliminary education that the veterinarian has not taken the position he should have taken.

Now we come to the summary of questions for discussion mentioned by the essayist. You will see that Mr. Hunting gives us eleven. I have reduced them to seven, because some of them really run in pairs; that is, one question cannot be discussed without the other. The first two questions are "Is our present position satisfactory? Can we maintain it or improve it?" I say, No; our present position is not satisfactory. I do not refer to the scientific man, I refer to the general practitioner. I do not wish to take any isolated example. I do not wish you to select Government Inspectors as your example of the profession; I do not wish you to take the Army veterinarians as your example; but I want you to select examples from the rank and file of the profession, and I say that no amount of adulterated argument, no amount of what Carlyle calls attorney logic, no amount of sophistical argument will convince the rank and file of the profession to-day that more difficulty is not experienced in earning a livelihood in the profession. I maintain that even within the period of my career, more difficulty is experienced in making a living in our profession than was experienced some years ago. The fees are considerably less, the visits are not so numerous, competition is keener. These are assertions, the truth of which I think everyone has experienced more or less. Everyone has experienced the effect of competition; many have experienced the force of reduction of fees. These are points I think that cannot be denied, and I will attempt to say something in the nature of a reason for this state of things. How comes it that the veterinarian does not occupy the position he did some years ago? One reason is that competition is keener, but we will not discuss that. Another reason is that the intelligence of his employer, of his client, and the intelligence of the animal attendant, is considerably improved. Comparing one country with another you will find that the intelligence of the animal attendant is better in Scotland than it is in Ireland, and better in Ireland than it is in England. And why? Elementary education has been legalised in Scotland since the year 1698, when there was a sound parochial or elementary education established. A similar change did not occur in Ireland until somewhere about 1831, and it was not until the year 1870 that elementary education was legalised in England. That is one contributing cause of the difficulty of practising. It is, perhaps, less difficult to practise in England than in Ireland, and less difficult in Ireland than in Scotland, because of the intelligence—I will not say of the owner, because education in such cases is universal—but the intelligence of the animal attendant, the stableman, and the cowman is better in Scotland than elsewhere. The late Professor Robertson used to emphasise that point. In his experience round Kelso he observed the remarkable fact that while Scotchmen would be visited they would not be physicked. What was their objection to being physicked? Simply because their intelligence taught them that drugs were in many cases valueless. Another contributing cause of the difficulty and of the unsatisfactory state of our position is that our profession is unique in the small number of its clients and extent of its public. There is no profession that you can name that appeals to so few people. With regard to the profession of the Church, at some time of life it touches every individual, every man has some occasion to think of the Church. The medical man appeals to everybody who has a family or who has no family—

there is a constant demand for medical men. The lawyer is becoming more useful or more required in this country every year, owing to the multiplicity of loss and the captious nature of the people in consequence of crowding in on every side, which makes men bitter and feel that they are being trampled upon, so that they immediately seek the lawyer, The lawyer, I say, appeals to everyone. Even the dentist, who is sometimes quoted in opposition to the veterinarian, appeals to everyone who lives in a civilised country, because in all civilised countries the teeth decay and disappear, while in uncivilised countries the teeth are good. The veterinarian simply deals with horse-owners, horse-lovers, animal-lovers, and one of the contributing causes of the unsatisfactory state of the profession is the small number of his employers or clients. I do not know if a custom that was in vogue in China could be introduced with advantage in the practice of the veterinarian. In a lecture delivered about thirty years ago, Professor Brown, head of the London Veterinary School, referred to a custom then in vogue in China in medical practice—I mean the custom of the medical man being paid only so long as his patient was well, the doctor paying the patient when the patient was ill. That perhaps might be introduced into our practice. I do not know how it would work, but perhaps it is worth thinking of.

We now come to the second question. I do not make any attempt to exhaust these questions, because they are simply beyond all possibility of exhausting. The second question is, "Have we not neglected preventive medicine?" What is preventive medicine, and how is it to be applied? Preventive medicine, I hold, is the outcome of human sympathy for human suffering. Preventive human medicine was introduced to save human life and make life more tolerable. Preventive animal medicine is a question of public economy. How will you apply preventive medicine? Our essayist does not attempt to explain how he will apply preventive medicine in our practice. We know something of the application of preventive medicine in dealing with preventible diseases, such as contagious pleuro-pneumonia and others, but these diseases do not concern the rank and file of the profession; they concern a few men only. Will Mr. Hunting apply preventive medicine to common ailments of farm animals? If he will do so, I should like to hear how he proposes to do it. In the example he gives, rot in sheep—he does not say whether it is foot rot or liver rot, I presume it is liver rot—he says preventive medicine might be applied to the treatment. I wonder how he would proceed. Let us take his argument on his own statement. Liver rot may be due to parasites immediately. How the parasite finds its way through is a little more difficult to understand. But in order to prevent liver rot, the veterinarian is required to give advice, and that advice would concern, not only the client, but it would concern the landlord; it would concern the seasons; it would concern the rains; it would concern the geological formation of the soil—all these things would have to be considered in any scheme of preventive medicine. Then let us see how we are going to apply preventive medicine to diseases of horses. Take hereditary diseases. The veterinarian is sent for, and the client says: "I want you to examine this sire, and this dam, and see if they are a suitable pair." The veterinarian examines each. He discovers that they are both satisfactory, and he says: "Yes; put them together. I think you will have no disease." They are put together. The veterinarian sits down and waits eleven months. A foal is produced and then he has to wait some time longer before he can make up his mind whether he has succeeded in his advice or not. Then take diseases of horses not specially hereditary. Take the common lamenesses of horses. How will preventive medicine prevent lameness in a horse? Will Mr. Hunting teach farmers to keep and feed horses till they are five years old—till they mature? Will he subsidise the tenants to help them to pay their

rents ? I certainly consider that this argument with regard to preventive medicine, except in its application to what are called preventible diseases, is not tenable. In some respects it is absurd, and in many cases, instead of improving the position of the veterinarian, it would reduce him to beggary. I do not want you to go away with the idea, or the impression, that I am against preventive medicine. I regard it as a most laudable thing—a thing which the veterinarian no less than the medical man, should continually regard on every suitable occasion; but when he begins to introduce it into practice, and to recommend clients to send for him for something which he did not know might happen, I think you will find that he will be a long time in being sent for. If Mr. Hunting would tell us all those things which he would wish to prevent, we might made arrangements accordingly; but he does not supply the necessary information beyond enumerating those diseases which, even though they be preventible, are not at the present time treated with success. Is it any credit to the profession that the only remedy for pleuro-pneumonia is slaughter ? Is it any credit to the veterinary profession that the only remedy for the foot-and-mouth disease is slaughter ? Is it any credit to the veterinary profession that we can do nothing for strangles ? You may cite black quarter and anthrax, in recent experience in England, as cases in which preventive medicine is unlikely to prove successful. Mr. Hunting deals with owners (?), and gives us some conclusive statements; but he must give us more details, less assertion, and more proof.

Now we come to the third question—Is there not a wide field for hygienic experts ? This is the delightful thing. What is hygiene but preservation of health ? and what is health but the average state of the body—the average state of the physiological performance of the functions ? Hygiene is an excellent thing, but unfortunately the main facts of hygiene have been taught in this profession since its foundation. It is no new thing to talk of hygiene. It may be new or novel to speak of hygiene as a separate study, but the sum and substance of this study, the various principles, and a great deal of the practice of hygiene are taught, and have been taught for years, in the veterinary schools of this country. All that is required for the exercise of this department is simply common sense on the part of the practitioner, and hundreds of practitioners exercise their knowledge of hygiene whether they will or not They do so unwittingly, not caring a fig whether the knowledge they are spreading is hygiene or not. What is the recipe for hygiene ? Take a slice of chemistry, a little *materia medica*, some therapeutics, a little physiology, a little information derived from the other side, such as information regarding draining, and you get hygiene. There is no doubt that all these things are taught. The student at the present time is taught the composition of atmospheric air; he is taught the diffusion of gases, about cubic space, about the adulteration of atmospheric air; and so on. The veterinary student is taught in physiology about the capacity of the lungs, the necessary amount of tidal air, and also the necessary number of volumes that each individual requires; he is taught the properties of drugs and of various plants, their feeding properties and the like; he is also taught about poisonous plants. All the things that Mr. Hunting would like to include under hygiene are already taught, but, as a mere plea for novelty, I will admit that hygiene catches the public eye, and if the veterinarian goes out into the world with this new item tacked on to his knowledge, he will no doubt appeal to the public with better success than he would without it. But I want it to be understood that it is not because the veterinarian of to-day is ignorant of these facts of hygiene that he does not really practise hygiene. I say he is not ignorant of the facts. He may not have the benefit of a special course on the subject, but I maintain that all that Mr. Hunting claims is already taught in the schools of Great Britain.

The next question is, "What openings are there for the veterinarian? This is a very difficult question to answer. Mr. Hunting cites the Army, the Board of Agriculture, Meat Inspectors, Market Inspectors, and so on. Can we assist in making more openings? I do not know. I should not like to undertake to answer that question. I do not think we are concerned with the openings at all. It is not compulsory on any man to become a veterinarian: that is my standpoint. It is optional on the part of any man. He need not enter a college; he need not study four years; he need not pay his fees. If he does not see his way beyond the diploma point, he has no right to enter. I do not think our profession should be concerned in finding openings for those who think the profession worthy of study; that is not our subject. I maintain that these two questions, "What openings exist for more veterinarians?" and, "Can we assist in making further openings?" are conundrums, and those conundrums can be best answered by the author.

The next is, "Need we fear overcrowding?" How can we avoid it? If you refer to Mr. Hunting's paper, you will notice, if you read between the lines, that our friend is perfectly convinced that there is overcrowding, and that there is a danger of greater overcrowding, but having adopted an optimistic view in writing his essay, he must make his argument suit his ideas, and not his ideas suit his argument. You will observe that he still hankers after overcrowding. He knows that it is something more than a phantom or ghost; at the same time, he will not admit that it is a serious thing, and he proposes to remedy it in this way: "The bugbear of overcrowding can be conquered by turning out a man better equipped to meet the demands of the world." That is all very nice. Now, is not overcrowding felt in many districts already? Those who are present to-day will be able to say how they find it in their districts.

(To be continued.)

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

A MEETING of this Association was held at the Grand Hotel, Birmingham, on August 9th. Mr. F. W. Barling presided, and the other gentlemen present were Professor Walley, Messrs. Jno. Malcolm, H. M. Stanley, R. Wilson, T. Butcher, H. A. Barrett, John Thomson, Geo. Smith, Harry Olver, J. M. Parker, Thos. Horton, E. Beddard, Joseph Coe, H. L. Pemberton, John Blakeway, A. L. Gibson, H. J. Dawes, R. Cartwright, L. C. Tipper, E. G. Crowhurst, Alfred Over, Jno. Higgins, F. B. Jones, H. D. Pritchard, R. Cartwright, A. E. Paley, C. H. Wilson, R. Halpin, Wm. H. Blackburn, R. L. Green, C. Byner, L. W. Heelis, W. Beddard, R. J. McAwse, F.R.C.S., and Geo. Edwd. King.

New Members.

The following nominations were made; Mr. Halpin, of Rugeley; Mr. G. E. King, of Newport Pagnell; Mr. John James Crowhurst, his son; and Mr. W. W. Grasby.

The circular letter from the Central Veterinary Medical Association concerning the matriculation and the four year's course, was read by the Secretary.

Mr. MALCOLM: I think it may be worth while to consider whether it would be worth our pains now to go into this subject. The Council has adopted resolutions for a higher matriculation and an extended curriculum, and I take it that nothing we can do will either stay its course or make it the more certain.

The PRESIDENT: I propose that the Secretary be instructed to write to the Central Veterinary Medical Association to say that, inasmuch as the subject has been already discussed and decided upon, we think it is not necessary for us to go into the matter.

Mr. L. C. TIPPER seconded, and the motion was agreed to unanimously.

Professor WALLEY then read a paper on

"PUTREFACTIVE PROCESSES IN RELATION TO DISEASE."

The lecturer in introducing his subject disclaimed any special bacteriological knowledge, but as they were in a position to take advantage of the results of the labours of bacteriologists, there was no need for any excuse for its introduction. In considering the effects of the products of putrefaction upon the animal body, he said the condition they give rise to was commonly termed blood poisoning, but that term was deficient in precision. Septicæmia and pyæmia, long used indifferently, were now used distinctively, nevertheless the conditions known by these names were frequently associated. In 1878 Koch drew a distinction between septic intoxication and septic infection. Disease due to the introduction of products of putrefaction into the blood he termed septic intoxication, but that due to the introduction of the organisms themselves, septic infection. The word putrid was frequently used in place of septic, but that was a distinction without a difference. In putrid intoxication the blood of the affected animal was not infective when introduced to other animals, but it was so in septic infection. For a long time bacterium termo was applied to the organisms ot putrefactive fermentation, but it was now well known that under that term were included a number of different species. With reference to the question of pathogenic organisms becoming under certain circumstances non-pathogenic and *vice versa*, he said Pasteur had simplified the matter so far as the first aspect of the question was concerned, by rendering virulent organisms non-virulent. In fact these lower organisms were, like their higher prototypes, capable of modification in a variety of ways, therefore the line between pathogenic and impathogenic organisms was by no means so clear as might at first be thought. Many years ago Prof. Law, of Cornell University, demonstrated in the milk of cows suffering from a low form of fever an organism identical with one found by him in the water of the well from which they drank, and he was able to reproduce or arrest this fever at will by simply with-holding or allowing access of the animals to the particular water.

While there existed legitimately a doubt as to the power of multiplication in the blood stream of the organisms of putrefaction, there existed no doubt as to their power of producing putrefactive changes in organs where vitality had been lowered or arrested by depriving them of nourishment—*e.g.*, by arresting the circulation locally. Chauveau, many years ago, showed that if the spermatic artery of a goat be tied the testide dies, but it does not putrefy; but if previous to the ligaturing of the artery, putrefactive matter be introduced into the general circulation, putrefaction of the mortified organ results. The production of putrefactive processes and the poisonous action of their products was favoured by such predisposing influences as bad hygienic surroundings, lowered constitutional vitality, mixed infection, and functional or organic disease of important organs. The effects of lowered vitality are seen in many ways in general practice. Ewes improperly fed and subjected to the vicissitudes of the weather are not only subject to endometritis and putrefactive mammitis, but their lambs become the subject of imphalitis and its results; and this condition was at once done away with by initiating a change of management. Also, when subjected to lowering influences, a simple stomatitis in the dog became a gangrenous affection; and simple catarrh in all animals assumed malignant properties. Not only did lowering or relaxing influence the production of general or systemic putrefactive processes, but they hastened the advent of such processes locally.

In speaking of mixed infection the essayist referred to the possibility of the excretions of different micro-organisms which themselves harmless when separate, might unite and develop poisonous properties.

In reference to the connection existing between dead or dying animal tissue and the initiation of putrefactive processes, he said it was a generally

accepted theory that whenever any organic tissue was deprived of its vitality it was liable to undergo putrefactive fermentation; but this doctrine was true under certain conditions which he indicated. The professor then referred at some length to the remarkable simularity in the action of ptomaines and of certain vegetable alkaloids on the animal body, and concluded his very able paper by a detailed description of the general and special symptoms and clinical phenomena observed in septic diseases.

Upon resuming his seat the learned professor was warmly applauded.

The PRESIDENT: We are all very greatly indebted to Prof. Walley, for his very able paper. It must be to every veterinary surgeon a very interesting subject, and unfortunately it is one the study of which I, with a country practice, find it difficult to afford requisite time. I hope there may be a good discussion, for I am sure we shall all benefit from it.

Mr. OVER: The paper, sir, is so exceptionally able and travels over so large a field that it is impossible at a moment's notice to discuss it adequately. It would be easier to do so after seeing the paper in print. But I may say that while listening to it cases have offered themselves to my mind which have happened in my practice and have hitherto bothered me, but which, if they recur, I may now be able to elucidate. What Prof. Walley has said as to the exercise of care in castration I can fully endorse, for I remember that some twenty years ago, I was suddenly called upon to castrate six calves, and used a knife with which I had made a *post-mortem* examination, and they all died. I suggest that the discussion be postponed to the next meeting.

The PRESIDENT: I quite agree that that proposal is worth considering, but I may say that Prof. Walley cannot promise to attend the meeting.

Prof. WALLEY: I shall be very glad to be present if I can manage it, but I cannot undertake to be present.

Mr. MALCOLM: If Prof. Walley could have seen his way to come back I would have been the first to second the motion, but as I gather there is a grave doubt, I think a discussion in his presence would be more satisfactory. I think, therefore, we ought to continue the discussion now, and later on you can consider whether we should adjourn it. Like Mr. Over, I feel a difficulty in speaking on Prof. Walley's paper, but there are several points touched upon by him of great interest to us as practical veterinarians, *e.g.*, he has pointed out the necessity for good sanitation, and has very forcibly impressed upon us that diseases naturally benign in their character take on malignant properties under conditions of lowered animal vitality. For instance, he tells us that simple stomatitis in the dog under bad hygienic surroundings becomes a gangrenous affection; and a simple catarrh in cattle becomes a malignant one when animals are confined in the vitiated atmosphere prevalent on board some cattle ships. With reference to the professor's use of the words septic and putrid I am not quite clear, but it appeared to me that he used them indiscriminately. May I ask whether this is so, and if we may take it that these terms are identical in their meaning and may be applied synonymously?

Then there was one matter he referred to which was of great moment, viz., that Prof. Law had found certain pathogenic organisms in the milk of cows in consequence of these cows having drunk water containing these organisms. If this were true we had here such a source for the propagation of disease as was scarcely conceivable. If it be true disease could be communicated through animals to man with great facility, in that case there need be no question that such diseases as scarlet fever, as contended for by many able men, could be readily propagated through the agency of the cow. You had only to admit the contagion of scarlet fever to the drinking water of cows to contaminate the milk. But many of our very ablest pathologists maintained that so far there was not a particle of proof of the transmission of

such diseases to human beings in this way. What was Prof. Walley's own opinion on the subject, and could he cite any reliable authority who had tested and proved the accuracy of Prof. Law's conclusions?

Then the picture the professor draws of non-pathogenic organisms assuming pathogenic properties was enough to frighten them all, had he not at the same time told us of the protective power of our own inherent vitality. He was glad to hear of the beneficial effect of such agents as arsenic and quinine in cases of septicæmia, and all the more so as his own success in treating that disease had scarcely been all he could wish. There was just one other question he would like to ask, and that was with reference to Prof. Walley's opinion as to the cause of a great fatality among lambs sometimes supervening upon castration. In a recent paper on the subject it was attributed to malignant œdema. Now, so far as he knew, there was no record in any of our text books or periodicals bearing out this. What was the professor's view? Were these cases of malignant œdema or septicæmia? or might it sometimes be one and sometimes the other?

Mr. BLAKEWAY: May I ask what Professor Walley considers the shortest time which might elapse before we should find pus in a wound, after, say, a nail had punctured; and whether pus would be longer forming in some structures than in others? I was a little surprised to hear him speak against perchloride of mercury, because its use is so generally advised.

Mr. BUTCHER: Has Professor Walley met with any so-called cases of endometritis occurring in heiters? And does his experience endorse that of two recent writers in the VETERINARY JOURNAL namely, that it occurs rarely in heifers of any other colour than white? Since Christmas I have had three cases, and these have all been in white heifers. Can he give us any explanation as to how it is produced?

Professor WALLEY: In the first place, in reference to the question put by Mr. Malcolm as to the terms septic and putrid, if you will look at any dictionary you will find that one has its origin in the Greek and the other in the Latin, and that they are practically synonymous. That they are not used so synonymously as they at one time were I am well aware. "Septic infection" is a very old term, and it is only within the last few years that the term "putrid intoxication" has become common. Indeed, I do not know that as yet it is in common use. I first saw it in 1889, in one of the lectures published by the Sydenham Society. I don't know that this is a matter of very great importance so long as we understand what we are talking about, and one is apt to use the terms indifferently. As to the other question of Mr. Malcolm's with reference to micro-organisms in milk, I said that I had had my attention directed to it for the first time by a perusal of Professor Law's paper, but in that paper reference is made to a report by Dr. Percy, of the New York Academy of Medicine, issued in 1858, on "swill milk." In the United States cows are fed on swills from distilleries, etc., with the object of forcing as much milk as possible; and Dr. Percy says that the presence of spores in such milk is patent, and that it produces indigestion in infants. It seems to me it is only a question of whether organisms are likely to gain access to the blood through the vessels of the intestines. That some organisms can do so is proved by the fact that we do, as I have said, get the organisms of putrefaction so introduced into the system. We know that positively. Woodhead, in his book on bacteriology, says that processes of this kind are set up whenever the mucous membrane is damaged from any cause whatever, and in the milk of sewage-fed animals you frequently get putrefaction set up in a few hours if it is allowed to stand aside, and even the products of the milk readily putrefy. You may say the organisms get into the milk after its withdrawal from the animal, and that may be perfectly correct, but all the same the milk is in such a condition as to predispose to putrefaction. I am sorry I have no evidence

at hand in support of Law's view, but I know that such evidence exists. I fancy the question of the gaining of access by organisms to milk, or in other words to the milk, and thence to different organs, would depend a good deal upon their size. One or two very important and interesting experiments have been recently made in connection with this subject. For instance, it has been shown that certain organisms may be passed through the blood without affecting the endocardium or the myocardium, but if you mix your infective matter with solid matter to which the bacteria can adhere, you can produce myo- and endocarditis, and a variety of other processes which are never seen under other circumstances. You then make the organisms too large to pass through the minute vessels of particular structures; therefore I imagine that if organisms be too large they will not pass from the intestines into the blood. I know this is an extremely important question in relation to scarlet fever, and I hope the doctors will succeed in settling it. As to malignant œdema, I believe that most of the deaths after castration are due to nothing more or less than putrid processes, not malignant œdema at all. As to the use of arsenic, it may be of interest to you to know under what circumstances I first used it. I had a case in Edinburgh of putrefactive pneumonia, and I had adopted all my usual methods of treatment; I was, I may say, at one time taught to believe that such cases never recovered, but I have frequently seen the contrary. In this case, however, reeovery did not progress as I wished; so I tried arsenic for an experiment, and the result was simply magical. I notice that comparatively recently some of the best of our medical bacteriologists have come to mention and recommend it in conjunction with quinine. As to the length of time within which pus makes its appearance in different structures, I have seen it in the feet after 8 or 10 hours, and in dogs after 12 hours; but you expect as a rule the lapse of at least 24 hours. I am well aware it is often a question of importance to distinguish the length of time a wound has been inflicted. Certainly differences in structure and conditions have much to do with it. The more cellular a structure the more rapidly pus will form, the more fibrous the less rapidly, and so with the nature of the irritant. As to perchloride of mercury, I particularly alluded to a statement in a French journal. I myself should not hesitate for one minute to use it, always taking care that it is not too strong. Both in taking away putrefied placenta and in dealing with putrid endometritis, I have found chloride of lime as good as anything. I think Mr. Butcher will remember that when he was at college I used to direct attention to the condition he mentions as occurring only in white heifers. I mean, of course, probably in a very large percentage of cases. Mr. Lewis, of Crewe, was about the first man to mention this. A curious thing about it is that you may practice in 40 districts and never come across a single case, and then you may find it in the 41st. I never met with it in the Midland counties, Lancashire, or Wales, but in Cumberland and Westmoreland it is commonly recognized, and some practitioners keep trocars of a large size for puncturing the hymen. It is due either to non-rupture of that membrane, or to its partial rupture and the subsequent rapid healing of the wound, so that you get a col ection of menstrual fluid. My own impression is that when the fluid is putrid the latter is the case, and that air has found its way in; otherwise you would not get putrefaction set up.

Mr. L. C. TIPPER moved, and Mr. MALCOLM seconded, a vote of thanks to Professor Walley for his paper; and it was cordially agreed to.

In reply the Professor said that he knew the subject of his paper was a difficult one; but there was none more important to the veterinary profession, and none which confronted them so incessantly. Unless they knew something about it, they might lose the lives of animals and a good deal of hard cash too.

On the motion of Mr. OVER, seconded by Mr. OLVER, the next meeting was

appointed to be held at Rugby. A vote of thanks to the President for his conduct of the proceedings closed the meeting.

Afterwards the members and visitors dined together.

SOUTH DURHAM AND NORTH YORKSHIRE VETERINARY MEDICAL ASSOCIATION.

THE fourth annual meeting of this Association was held in the North-Eastern Hotel, Darlington, on September 2nd, Mr. F. R. Stevens, President, in the chair. There were also present Messrs. H. Gelsthorpe, G. J. Harvey, and W. N. Dobbing, Darlington; G. E. Nash, Richmond; J. Nettelton, Northallerton; P. Snaith, Bishop-Auckland: H. H. Roberts, Conndon; A. Peele, West Hartlepool; and W. Awde, Barnard Castle.

Visitors: G. R. Dudgeon, Sunderland; Mr. Peele, Junr., Durham; Dr. Manson and Mr. Atkinson, Sanitary Inspector, Darlington.

Mr. Awde having vacated the chair in favour of Mr. Stevens, a hearty vote of thanks was accorded to him for presiding during the past year.

Several interesting cases were then brought forward. The President exhibited a two-years-old colt which after being fed and then exercised would cough, and some portion of the food came down both nostrils. This had gone on for a period of twelve months. He also stated the case of a cow which was continually having pieces of stick wedged into her nostrils. This had occurred repeatedly, and in spite of precautions being taken to prevent a recurrence of it. Mr. Peele exhibited a mass of hair which formed the contents of a cyst removed from a tumour which he excised. Mr. Nash showed a thermometer in which a screw connection had been substituted for the bayonet joint.

Mr. Nettelton also exhibited a new thermo-cautery for firing, made at his suggestion by Mr. Huish. The greatest improvement was the substitution of an end similar in shape to an ordinary firing-iron and of sufficient weight to balance the part held in the hand. This end can be easily screwed off and two other ends affixed for puncture firing.

The discussion on Mr. Briggs's paper was postponed until the December meeting, owing to his absence from home.

Mr. STEVENS moved that on and after September 2nd, 1892, all visitors to the Association should be presented with free dinner or tea as the case may be. Carried.

Mr. G. J. Harvey, M.R.C.V.S., Darlington, and Mr. Alex. Neish, M.R.C.V.S., Northallerton, were unanimously elected members of the Association.

The TREASURER then submitted his annual report, which showed a balance in hand of £9 11s. 1½d., and several accounts presented were ordered to be paid.

The PRESIDENT then delivered his inaugural address as follows:—

GENTLEMEN: It is with a great deal of pleasure that I meet you all here to-day. I must at once thank the members of our Association for the honour they have done me by electing me their President for the ensuing year. I very much hesitated at accepting that honour, as I felt there is so much responsibility in holding such an office, but I trust that the members will assist me by bringing plenty of material forward at our meetings, by regular attendance, and by that good fellowship which has hitherto existed amongst us as members of this Association, so that my year of office may at least not prove burdensome to you. It is not my intention, gentlemen, to give you a long address, as I often think presidential addresses are looked upon as the one drawback to annual meetings. There must be a great similarity, and as we are all anxious to hear Mr. Thompson, I shall at once bring before your notice a few subjects of interest to the profession.

I suppose that it will generally be accepted amongst us that the New Charter is one of the most important subjects. The Profession has shown emphatically and decisively, that a New Charter is needed, and I must say I cannot understand those gentlemen who are supposed to have the interest of their profession so much at heart, opposing it in the manner they have, and thereby causing so much unnecessary expense. The Charter itself has been so well discussed, and members have been made so conversant with its details, that I feel it is quite unnecessary to repeat them; but before leaving the subject I would suggest that the Charter be well guarded and watched over until it has become Law, and we must depend upon those members of Council whom we have sent mainly for that purpose, to look carefully after our interests. It is a matter of very great regret that the Royal Society for the Prevention of Cruelty to Animals is persecuting as well as prosecuting our members. Each one of us, I feel sure, sympathises with that Society, and has hitherto been willing to render every assistance in its good work, but if the Society continues to act upon the lines it has lately, I fear much of that sympathy will be lost. Indeed, I will go farther and say that it will be necessary for the Royal College of Veterinary Surgeons to be called upon to take action in the matter, and to defend its members when unjustly prosecuted, and I think those of our members who give evidence against another veterinary surgeon because his treatment may not coincide with theirs (in these particular cases), are even more to blame than the Society. Take, for instance, "Lymphangitis." A well-known veterinary surgeon, when giving a paper before this Society, advocated exercise; now, supposing a newly qualified man, just starting in practice, carried out that treatment after hearing that paper, would it not be most unjust that that young man should be prosecuted? Even if he won his case is it not likely to do him considerable harm, and in some cases might it not be his ruin? We all know there are persons who believe that it would be most cruel to exercise a lame horse, and would never employ a veterinary surgeon who had been prosecuted for doing so. We must all regret that the Society should waste its time and energy on such cases.

I think it is a matter of congratulation that the veterinary surgeon has been the means of considerably arresting that (to the agriculturist) all-important enemy, Foot and Mouth Disease. Too much credit cannot be given to Mr. Rayment for discovering the existence of the disease, or to the Veterinary Department of the Privy Council for tracing the infected cattle in so short a space of time; and I venture to think if there had not been decisive action, together with great care and knowledge displayed by the veterinary surgeon of that Department, Foot and Mouth Disease might have been as prevalent now as in most of the previous outbreaks; for we all know that when a few years have passed without an outbreak, precautions become neglected. Cattle seem to be much more susceptible to this disease, and it spreads most rapidly. There have been only ninety-four outbreaks since the 1st of February, but I regret to find that on August 16th there still existed two outbreaks, both in the borough of Leith. The stamping-out process so far seems to come to the fore with regard to pleuro-pneumonia. We cannot hope that pleuro-pneumonia can become extinct for some years; one great reason being the difficulty the farmer has to recognise the disease in its early stages, and in some isolated cases even the veterinary surgeon is puzzled. There have been, up to August 16th 58 outbreaks since last September—there were 295 outbreaks during the previous 12 months, and 499 the year before. Statistics therefore show a marked decrease in pleuro-pneumonia since the stamping-out process was brought into force.

Doubtless we are all looking forward to the good which we hope will result from the Royal Commission on Tuberculosis. The interesting and instructive

details of this Commission should, in a great measure, help to alleviate the ills which arise from this wretched disease. It is surprising to find how many and to what an extent, even young cattle are affected by it; this only demonstrates how necessary it is that qualified veterinary surgeons should be appointed as Inspectors of Dairies both for town and country. The fact that a great proportion of the milk consumed in towns comes from farms at a distance, is very often overlooked. It is, under existing arrangements, impossible for parents to feel sure that the milk they purchase for their children is free from bacilli, and it appears to me that they have a right to demand protection in this matter, as far as it is practicable. I think, if they knew as much as we veterinary surgeons do about the number of cows suffering badly from this disease and freely discharging the germs of it through the mammary gland, they would not resent so small an addition to the taxes as would be required for the appointment of a proper Inspector.

I am sorry to note that glanders is on the increase; it is argued that it is not so, but I fail to see how this is made out; certainly it is more extended. It was almost an unknown disease in the country districts, but this is not so now. I had a case only a few weeks ago; the horse had been driven to market, and had been in contact with all the other horses on the farm. The owner objected for some time to have it slaughtered without compensation, and here I think lies the great reason for the spreading of this disease. I believe there is no compulsion to slaughter, and certainly no compensation. These are, in my opinion, two of the greatest causes of the spread of glanders, and I think the time has arrived when this matter should be taken up by the authorities, and an alteration of the law brought about. It does not seem to be sufficiently known how fatal it is to the human subject, and what risks people run in attending on horses affected with it.

It appears to me that if a veterinary surgeon were appointed Inspector of all Dairies (Rural and Urban), Slaughter-Houses, and Abattoirs, Inspector of Contagious and Infectious Diseases, and of Meat, that he would have all his time occupied, and I contend that he should be properly remunerated and not permitted to practise privately; as it is impossible for him to act as Inspector without offending some clients, and the fees which are generally allowed for the work which the veterinary surgeon is at present occasionally called upon by the authorities to do, often does not compensate him for his time, and certainly not for the harm it does him as a practitioner. I think if this matter were brought before the Minister of Agriculture he would see the necessity for the appointment of properly qualified men. I am glad to find that two more of our members have been appointed as Inspectors, and doubtless the favoured places will be glad to have the satisfaction of knowing that the meat they eat is wholesome. The Veterinary Department of the Army is to be congratulated on the recognition it has at last received; and I am inclined to think that the recognition is mainly due to the respect in which the members of that department are held, and it certainly includes men of whom we have cause to be proud. In Professor Smith we have a gentleman who has done good service to the profession by giving us the benefit of any treatment he has proved to be advantageous. His treatment of Side-Bone alone is worthy of the highest praise. In February, 1889, I operated on both fore feet of a horse that had been lame nearly two years; everything else had been tried. The horse became sound in about six weeks, and has remained so. Since then I have operated successfully on several horses for Side-Bones and also for Ring-Bone, where the horn was pressing upon the growth. I contend that such men as Professor Smith are worthy of the Fellowship Degree without any examination; he has conferred a great favour upon us by giving full particulars of his operation, and by advising the members to try it. I

might mention others who have conferred equal benefits, and who ought to be recognised not only by us but by the Government. It is a subject for regret that our Government does not give encouragement to the Veterinary Profession ; if a member is recognised at all, it is in his capacity as Mayor, or upon the occasion of the Queen's Jubilee, seldom or ever on account of his distinguished ability. If it were not for such Societies as the Royal Agricultural Society, Brown Institution, &c., we should have absolutely no encouragement for research. It is unfortunate that there has been no satisfactory settlement of the Methylated Spirit Question. Submitting a formula to the Inland Revenue Authorities for their approval entails extra work, extra expense, and great inconvenience ; and the difference in the cost of the two spirits, rectified and methylated, is of considerable importance ; more especially in country practice, as cattle require larger doses than horses, and yet we cannot charge even as much as the town practitioner. I hope the Council will not let this matter rest until it is on a more satisfactory basis. It appears now to be definitely arranged that after September, 1893, our Matriculation Examination in General Education must be sufficiently advanced to satisfy the General Medical Council. The four years' course will begin in April, 1895. These are, I think, steps in the right direction, as the more cultured the members of any profession are, the better position that profession takes, and I venture to think that the low standard of general education required, has been one of our greatest drawbacks. This subject takes me back to my college days, and brings to my mind the way in which students were treated during the time of the examinations. No student knew when he was going to be examined ; sometimes he did not even know the day, but had to wait about the college until his name was called ; this uncertainty did not tend to strengthen the student's nerves. Possibly by this time matters may have improved ; but from what I gather from recently qualified men the students are not treated with the consideration, in this respect, that they might be. The Veterinary Students' Union should call attention to this matter. A great deal has been written lately upon professional etiquette, and it is a most difficult problem to solve. I have no doubt that if we were all in good practices and doing well there would be very little occasion to discuss this subject. We all have our living to make, and as long as so much of our business depends upon grooms and coachmen, so long will it be a question of Etiquette *versus* Livelihood. Every young member of our profession must make a living, if he can ; and I think he would stand a poor chance of doing so if he started in practice without in any way either advertising or calling upon possible clients. He would have to remain at home waiting until some case came in, and I think you will agree with me that he would probably have to display a great deal of patience ; and when, if even the case came, he must show that his ability, conduct, education or appearance are superior to the man he has come to oppose. There are various forms of advertising, and various opinions as to what constitutes improper advertising ; I think it would be difficult to find the happy medium.

It has been said that the members of the sister profession do not advertise. They have not the same necessity for doing so ; their chances of working up a practice are so much greater than ours, as there are more possible patients for them than for veterinary surgeons in a given space in any town. I must allow that professional etiquette might be much more practised than it is, particularly in consultation cases ; but I fear the time has not yet arrived when we can do away with advertising, sending circulars, &c. I believe that some of us already send their accounts without giving details ; this is a great saving of labour and expense, and I think many more of us would like to do so, but it would be necessary for the members in each town to be unanimous for it to be practicable.

I think each Association should arrange in a great measure, its own veterinary politics, such as agreeing to certain fees for examination, mileage, &c., that all might charge the same. Members should report their grievances, and in that way many difficulties which tend to disunite us might be easily surmounted. Before concluding, I have pleasure in informing you that our Association, although a small one, still continues to flourish. We now number 23; the meetings are generally well attended, and I expect to hear a very satisfactory report from our worthy Treasurer, Mr. Nash. He is well qualified for that office, and if he does not gather the funds I don't know who can. This Society is really an offshoot from the North of England Veterinary Medical Association, and we have great pleasure in welcoming several members of the parent Society here to-day; they are always ready to help us, and as we are a small Association we are grateful to them for their assistance. Gentlemen, I thank you for the patience with which you have listened to me during the reading of this address.

Mr. AWDE proposed, and Mr. GELSTHORPE seconded, that a hearty vote of thanks be accorded to the President for his address. Carried.

Mr. THOMPSON, of Aspatria, did not appear as promised, to deliver his paper on "Dentition in Horses and Cattle."

The annual dinner was afterwards held in the Hotel, Mr. Stevens again presiding.

The usual toast list was gone through and a pleasant evening was spent.

W. AWDE, *Hon. Sec.*

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting took place at the County Hotel, Newcastle-upon-Tyne, on Friday, August 19th, 1892, the President (G. R. Dudgeon, Esq.), in the chair. There were present Messrs. Hancock, Wm. Hunter, C. Stephenson, Gofton, Elphick, D. Dudgeon, J. E. Peele, Shivas, and the Acting Secretary.

Letters and telegrams regretting their inability to be present were received from Professors Williams and Walley, Messrs. D. Macgregor and J. B. Nisbet.

Mr. T. R. Jarvie, Gateshead, was unanimously elected a member. The President nominated Mr. Lawrence, Stockton.

In accordance with the resolution adopted at the last meeting, a letter of congratulation was sent to Mr. J. E. Peele, Durham, on his appointment as a Justice of the Peace. A reply from Mr. Peele was now read, in which thanks were returned.

It was resolved that the letters be entered in the minutes.

The PRESIDENT exhibited nine calculi; the largest about the size of a large orange, had passed into the small intestines; rupture took place, and the calculus was the first thing observed on opening the abdomen. The remaining calculi were found in the colon. The owner had had the animal six years, and he had never had a day's illness previously.

Mr. STEPHENSON expressed surprise at the calculus having passed through the ileo-cœcal valve.

Mr. ELPHICK gave the history of a case in which he found 54 calculi, varying in size from a large orange to a hazel nut.

Mr. SHIVAS had removed 17 from the rectum of a van horse.

Mr. WM. HUNTER gave the history of a case in which he found a large calculus in the abdominal cavity, and an immense one in the intestine.

The adjourned discussion on Mr. Wm. Hunting's paper on "Fistulous Wounds" was continued.

Mr. ELPHICK has found Jeyes' fluid very efficacious in cases of quittor; some cases require one injection only, but where necessary he repeats injection every third day.

Mr. WM. HUNTER, in quittor, uses corrosive sublimate plug.

Mr. PEELE, in quittor, makes free use of bistoury, hydrarg. perchlor. in solution, also chloride of zinc and blisters.

Mr. SHIVAS, in quittor, uses carbolic acid and glycerine.

Mr. GOFTON, in quittor, makes free use of knife, treating afterwards as common wound. Would give Jeyes' fluid a trial the first opportunity.

The PRESIDENT thought in quittor, there was a good deal of luck; some cases heal quickly, others seem to resist every agent you can think of. Has used almost everything; if one remedy does no good he tries another. He thought quittors could not be prevented.

A hearty vote of thanks was accorded to Mr. Hunting and also to Mr. Stephenson.

The usual vote of thanks to the President terminated a very interesting meeting.

JOHN W. T. MOORE, Acting Sec.

THE SANITARY CONGRESS AT PORTSMOUTH.

AT the meeting of this Congress held September 14th, Mr. J. OLDFIELD read a paper on

"TUBERCULOSIS: OR, DOES CONSUMPTION ARISE FROM FLESH-EATING?"

He said among the terrible diseases which cursed humanity tuberculosis is, perhaps, the most terrible. It existed in men to an enormously high percentage, largely in consequence of the ingestion of tuberculous meat. Animals used for food were, as a fact, infected with tubercle to an enormously high percentage,and it was practically impossible to detect the disease when the meat was cut up and offered for sale. Flesh was not a necessary part of the diet of man, and therefore, in the face of the dangers with which its use as a food was connected, it was not less than suicidal to advocate an increase in its consumption; whereas, the soundest policy was to agitate for its entire disuse under existing circumstances. There was abundant evidence to show that animals which had become tuberculous from long lactation or other causes, were rapidly fattened up for the market, and that butchers (sometimes honestly and ignorantly, and sometimes knowingly and purposely) purchased such animals, which were slaughtered in private establishments, in villages and towns alike, without official supervision. The carcases were then "stripped," and the internal organs, if not very badly diseased, were sold in cheap shops, or gave substance to highly-spiced sausages, while the remaining portions of the animal, in which the disease could not be detected except by a microscopical examination—which it never got—were distributed far and wide, and appeared equally as sirloins on the royal board or as tripe in the peasant's hut. The presence of even a trace of tuberculous deposit rendered the risk of partaking of any of the animal in which it appeared so great that the whole carcase should be at once condemned. Under existing circumstances, the eating of flesh food in any form was inimical to the health of the community, as being a great factor in the origination and spread of consumption.

Sir C. CAMERON, in opening the discussion, said that, although very interesting, it was one on vegetarianism. If tuberculosis was caused in animals by eating of the flesh of other animals, how was it that cows contracted it? They might just as well say that because cholera was contracted by drinking impure water, they should drink nothing but whiskey and porter.

(Laughter.) He did not think they should abstain from flesh-eating because one in ten thousand might die from it.

Dr. A. LUTHEN said the dangers of contracting tuberculosis from eating affected flesh would be practically *nil* if the meat was properly cooked.

On the motion of Mr. OLDFIELD, the section passed a resolution advocating a total abolition of private slaughterhouses in towns of over 20,000 inhabitants.

VACCINATION AND SMALLPOX.

Veterinary-Captain F. SMITH, professor in the Army Veterinary School at Aldershot, read a paper on "For how long does Vaccination confer Immunity against Smallpox?" His remarks were chiefly based upon the assumption that susceptibility to the virus of vaccine is indicative of the person being susceptible of contracting smallpox, and the source of his information on the subject was derived solely from the returns rendered to the Army Vaccine Institute. The total number of vaccinations of which he had to speak was 85,423, and the percentage of successful primary vaccinations was 92·64, and that of successful revaccinations 88·37. Of the 79,591 persons re-vaccinated it was certain that only 11·63 per cent. were protected against smallpox, and of the primary vaccinations 7·36 per cent. failed.

Some discussion ensued, the speakers generally expressing the opinion that primary vaccination was not sufficient, and that revaccination was a necessity. On the proposition of Mr. W. LION, seconded by Mr. SCULLARD (Portsmouth), the section agreed to a resolution advocating the transfer of vaccination powers from boards of guardians and sanitary authorities.

Army Veterinary Department.

THE following removals of veterinary officers were effected on Sept. 12th :—

Veterinary-Major G. Durrant from Aldershot to Newcastle-on-Tyne.
Veterinary-Captain J. W. Evans from Colchester to Weedon.
Veterinary-Captain W. B. Spooner from Aldershot to Ipswich.
Veterinary-Captain K. Lees from Weedon to Colchester.
Veterinary-Lieutenant G. C. O. Fowler from Woolwich to Aldershot, for duty with 20th Hussars.
Veterinary-Captain E. E. Bennett embarks, on the 16th inst., in H.M.S. "Himalaya," for a tour of service in Egypt.

We have been favoured with a copy of the Statistical Report of the Army Veterinary Department, Bengal Presidency, for 1890—91. From this it appears there were 6,979 troop horses, 2,687 mules, and 556 chargers on March 31st, 1891. The amount of inefficiency among these is stated to be less than in any period during the previous six years, being 70·21 per cent. of the average strength of horses and mules. The number of deaths from all causes was 2·77 per cent. of the average strength; of these 1·85 per cent. died, and 0·92 were destroyed. The comparative mortality amongst horses and mules was 3·18 and 1·71 per cent. respectively.

The British cavalry and artillery in Bengal have been free from glanders since 1886 One case of rabies occurred in a horse of the 5th Lancers at Meerut. There was a total absence of influenza among horses in the Presidency, though that disease was prevailing as an epidemic in India. We commend this fact to those who believe in the identity and inter-communicability of human and equine influenza.

Nine cases of poisoning of mules from, it was supposed, bad fodder, were reported from Darjeeling, but they all recovered. The cases of anthrax were fewer, and this diminution was attributed to the more general use of stack grass.

With regard to the ages of horses, the larger number were between eight years and ten months, and of mules between five and six years.

The report must be considered very creditable and satisfactory, considering how undermanned the Department is in India.

Veterinary Prosecutions.

At the Ramsgate Petty Sessions, held on the 29th August, Mr. George Beart was summoned at the instance of the Royal College of Veterinary Surgeons, for representing himself as a Veterinary Surgeon. Mr. Wotton (instructed by the College Solicitor), prosecuted. The defendant appeared in person and pleaded guilty, but said what he did was done in ignorance. Mr. Wotton having stated the facts, called as witness Mr. H. C. Brannan, who deposed that he was a clerk to Mr. Thatcher, the College Solicitor, and that in the month of June last he went to the Rose Inn, Broadstairs, and there obtained the circular which he produced, and which represented that one R. Beart practised as a Veterinary Surgeon at Ramsgate and Broadstairs. On the 22nd August, he attended at the defendant's place of business in Addington Street, Ramsgate, and saw a similar circular posted up in the window; he compared it with the circular produced, and was prepared to say that they were identical. Mr. G. Thatcher deposed that he was the Solicitor to the Royal College of Veterinary Surgeons; he produced their Official Register for the year 1892, and the name of George Beart was not in it. In the month of June last, in accordance with instructions, he wrote to Mr. R. Beart, at Broadstairs, summoning him to appear before a meeting of the Registration Committee, to answer a charge of conduct disgraceful to him in a professional respect, with regard to a paragraph in the circular as to forcing horses' mouths. He was present at that meeting, and the defendant then attended, and at first it was supposed that he was Mr. R. Beart, a member of the College. He was asked whether he published the circular, and he said that he did; subsequently, he stated that his name was George Beart, and that R. Beart was his brother, and did not know about the circular. He was then asked if he was a qualified person, and he admitted that he was not; he expressed sorrow for what he had done, and promised not to repeat the offence.

Mr. Wotton asked that a heavy penalty and heavy costs might be inflicted, as the College considered it was a very bad case; and he pointed out that the defendant could hardly plead ignorance of the law, as although on the 19th of July—the date of the meeting—he had promised to discontinue the offence, yet the witness, Mr. Brannan, proved that on the 22nd August, he was still displaying the bill. The magistrates retired to consider the matter, and, on returning into Court, said they should not inflict a heavy fine, as they intended to make him pay the costs of the two witnesses from London; they therefore fined him £2 fine, 11s. Court fees, and £5 costs of prosecution, to include the witnesses' fees, altogether £7 11s.

On September 16th, Edward H. Walsh was summoned before the Liverpool Justices, at the instance of the Royal College of Veterinary Surgeons, on a charge of unlawfully describing himself as qualified to practise a branch of veterinary surgery when he was not registered and held no certificate. Evidence was given that defendant's premises were described on a signboard as "Walsh's Veterinary Infirmary for Horses," and on a lamp "Walsh's Veterinary Infirmary." It was contended that there was no offence, as the defendant had not held himself out to be a veterinary surgeon. The magistrates, however considered the case proved, but being the first prosecution they imposed a fine of only 40s. and costs.

Obituary.

It is with a feeling of deep regret that we have to announce the death of Veterinary-Captain Murray Anderson, who died at the Citadel Hospital, Egypt, on September 1st, from aneurism of the aorta. This excellent officer, who was respected and appreciated by all the officers he served with, and greatly esteemed by those who knew his amiable and upright character, was born on March 25th, 1855. On March 29th, 1871, he became a Member of the Royal College of Veterinary Surgeons, and entered the army on the 23rd of June of that year. He served in India and Egypt from January 20th, 1876, to 27th October, 1882, and was present at the military operations in the last-named country in 1882. For this campaign he received the medal with clasp for Tel-el-Kebir, and the Egyptian bronze star. Returning to England again, he served at home until 1889, when he went back to Egypt for a tour of foreign service, which proved, unfortunately, to be his last. He was promoted to the grade of Veterinary-Surgeon, First Class, on June 23rd, 1885, and received the rank of Veterinary-Captain, 26th September, 1891.

The death is reported of T. M. Harrison, M.R.C.V.S., of Thirsk, who graduated in 1847.

Notes and News.

A Prolific Bitch.—A correspondent writes to the *Live Stock Journal*, stating that his St. Bernard bitch had brought forth seventeen puppies. Five died through the bitch lying on them, but the remaining twelve, and also the bitch, were going on favourably.

The Cure of Rabies.—Tizzoni and Centanni (*Deutsche med. Wochenschr.*, August 4th, 1892), have cured animals which exhibited the first symptoms of rabies, by inoculation with an aqueous solution of a substance obtained from the serum of rabbits rendered immune to the disease. This is precipitated from the serum by absolute alcohol; it contains the protective agent in addition to other albuminoids. Four animals injected with this substance were alive, and in the best of health, at periods varying from sixty to eighty days after infection with rabies, the symptoms having quickly disappeared after the injection, whereas the four control animals died from rabies at periods varying from eighteen to twenty days after infection. The authors speak of the possibility of keeping this substance, to which the serum owes its protective and curative qualities, in a form ready for immediate use in cases of rabies.

A Bird's Nest in a Horse's Tail.—During the Zulu campaign of 1879, in a squadron of the 1st King's Dragoon Guards, belonging to the British force stationed at Conference Hill, on the Blood River, Zululand, one of the selected posts occupied during the early phase of the campaign, were a number of colonial horses, purchased in the Orange Free State Republic by Captain C. A. G. Becher, of the above regiment, for the purpose of filling up gaps in the cavalry brigade caused by casualities inseparable from a severe campaign. During the grooming time a small bird was seen hovering around and approaching as near as it could to one of the horses, a short, grey, colonial animal. Subsequently the trooper grooming the same horse discovered a perfect nest in its tail. This singular discovery was reported immediately, and during the day Colonel Alexander, who was commanding, and other officers examined the horse, and the regimental veterinary surgeon, Mr. Longhurst, examined the tail and found that it was a perfect nest.

HYDROPHOBIA IN PARIS AND IN THE DEPARTMENT OF THE SEINE.—From a report just compiled by Dr. Dujardin-Beaumetz for the Sanitary Board of the Seine Department, it appears that in the period comprised between Jan. 1st, 1881, and Dec. 31st, 1891, 101 persons died of hydrophobia in the capital and in the department in which it is situated. Of these, 74 were males and 27 females. The prevalence of the disease was most marked in 1881 (21 cases), 1885 (22 cases), and 1888 (19 cases). The attention of the police authorities having been drawn to the evils of canine vagrancy at each of these dates, the malady became quickly more rare. The statistics of the Institut Pasteur are worth transcribing, as they go to prove irrefutably the efficacy of the inoculations therein practised. The figures run thus:—

	Persons treated.	Deaths.	Mortality.
1887 ..	306 ..	3 ..	0·97 per cent.
1888 ..	386 ..	5 ..	1·29 „ „
1889 ..	236 ..	3 ..	1·27 „ „
1890 ..	95 ..	0 ..	0·00 „ „
1891 ..	201 ..	0 ..	0·00 „ „

From 1886 to 1892, 11,029 persons suffering from dog-bites were treated at the Institute. Of these patients, 98 succumbed despite the treatment, making a mortality of 88 per cent.

AN UNUSUAL FOSTER MOTHER.—A singular case of adoption by an animal has just occurred at Castleford, Yorkshire. Mr. G. Hepworth, of the Crown Hotel, Hightown, has a sow which gave birth a day or two ago to twenty pigs. Three died shortly afterwards, leaving seventeen for the mother to suckle. As these were too many for her to properly attend to, and as Mr. Hepworth was anxious to save as many as possible of this numerous progeny, he took five of the newly-born pigs, and placed them with a setter, which had only recently had pups. Strange to say, this animal not only displayed no resentment, but actually took the five little aliens under her protection, and is now suckling them, exhibiting the utmost affection towards the little piggies.

FOOT-AND-MOUTH DISEASE IN GERMANY.—In a lecture on the loss sustained by the spread of foot-and-mouth disease, given by Dr. Lorenz at Darmstadt, and published in the *Hanover Agricultural Gazette*, he says the loss to owners is estimated at about 20 marks per head. The number of cattle affected with the disease during 1890-91, amounts to 882,000 head. The total loss is reckoned at 17,640,000 marks, or £882,000.

Correspondence.

ON THE "PROCEEDINGS" AT THE MEETING OF THE NATIONAL VETERINARY ASSOCIATION FOR 1892.

SIR,—Is it to the energy of our worthy Secretary, Mr. Malcolm, of Birmingham, or the activity of our Publication Committee, that we owe the very early issue of the printed Report of our annual "Proceedings" for the current year? Whoever the party or parties may be, it is certain they have not only smartly, but very efficiently done their duty, for a better or more interesting Report was never issued under the auspices of our National Association.

As a member of the Association I may, perhaps, be allowed to offer a few remarks on some of the topics brought under discussion at the meeting, and published in the Report; and, first of all, I would most earnestly second the proposal of Mr. Cameron, of Berwick, to permit absent members to forward in writing any useful, practical, or critical observations which they may wish

to make on the subject-matter of the "Papers" issued prior to, and afterwards to be discussed at our annual meetings.

As Mr. Cameron says, a larger portion of practical knowledge and experience might thus be brought before the profession and the public, which would otherwise be lost: I have no doubt our Secretary would willingly undertake to read such contributions at the proper time for bringing them forward.

The President's address, as might have been expected, was exactly suitable for the occasion and the audience, and touched upon several of the most interesting topics at present before the profession, of which it is useless here to offer any critical *resumé*.

It is equally unnecessary for me to enter into the vexed questions of the treatment of Milk Fever, and the nature of the equine disease hitherto known as Azoturia; suffice it to say that no "Royal Road" has as yet been discovered towards the satisfactorily successful treatment of the so-called "Milk Fever." It is, in my opinion, utterly unprofessional and unreasonable to expect that dire malady to invariably succumb to repeated doses of chloral hydrate and treacle! If any members of our rising profession would tell us exactly what is and what is not milk fever—then we might settle in our own minds whether to go in for brandy or chloral hydrate. But to go in for treating one cow (*struggling frantically*) with a temperature of 104° F. or more—and another cow (*comatose*) with a temperature of 98° F. or less—*both* with repeated doses of chloral hydrate and treacle! No, thanks, I would really rather not!

During the last twenty-seven years I have treated hundreds of cases of this so-called milk fever, and I must say that I was never particularly proud of my handiwork. I have sometimes had a steady run of six or seven successes, and was inclined to shout "eureka;" but the next three or four cases generally disenchanted me, and left me in despair. In face of the details presented in this our *Annual Report*, I decline entering into any history of my own experience.

I will now pass on to notice the two leading Papers discussed at our Annual Meeting, the most important of which was from the pen of Mr. W. Hunting, of London. The subject chosen by Mr. Hunting is one of paramount interest to every member of our profession, and Mr. Hunting has done his very best to bring all the phases of the question under our view; but while admitting this, I may be allowed to remark that his conclusions are not invariably correct.

Professor Macqueen opened the discussion on Mr. Hunting's paper, and in doing so made, without exception, the leading and most interesting speech of the day. The worthy Professor can candidly and honestly be thoroughly congratulated on the popular and lucid manner in which he announced his own ideas as to the correctness and feasibility of Mr. Hunting's conclusions. Mr. Hunting has a style all his own, and so it now appears has Professor Macqueen; but neither the one style nor the other seems to satisfy Professor Thomas Walley, who fell foul of Professor Macqueen's way of discussing Mr. Hunting's ideas to such an extent as to entirely forget the chief topic of discussion, namely, Mr. Hunting's paper.

For my own part, I think the only sensible utterance by Professor Walley was when he disclaimed the friendship of the Grand Old Man, and linked his name with that of the arch enemy of mankind! I must again congratulate Professor Macqueen on the thoroughly original, comprehensive, and popular nature of his speech.

The paper on "Castration," and the various speeches given during the discussion of that thoroughly practical but unscientific subject, must now be considered. It seems to me that the value of neither this paper on castration nor the observations of its discussers, is in any way commensurate with the self-laudatory ideas of the writer and his overfavourable critics.

Professor Dewar has written a paper on a very popular and interesting subject, and he has not given us, in so far as I can see, one single new idea to aid us in our future practice, except it be the use of the seton needle and the dressing forceps in cryptorchidotomy! I question very much the value of these two adjuncts in operating on "rigs."

This paper on castration would have been suitable in every way for delivery to a class of students without any practical experience of the subject; but to the *élite* of the profession, with generally years upon years of practical experience, the paper would have been nowhere had it not been on castration, a subject on which there is a rather general tendency to become garrulous and self-glorious. Accordingly, we are treated to some extraordinary exploits, such as castrating *five* colts in *one* hour with the hot iron, and *three* colts in *thirty-two* minutes also with the actual cautery! Might I ask these gentlemen if they *threw* and *secured* the colts *themselves*, or if their assistants did so, *while they merely performed the actual castration within the time specified?*

I was quite recently informed by a farmer, of an M.R.C.V.S. taking over one hour to castrate a five years' old Clydesdale stallion by torsion, during which the parties assisting got their hands, arms, and faces cut and bruised. Ropes alone were used in throwing and securing this stallion, after what was called by the operator, the Irish fashion.

I think I may safely say that it is impossible for any professional man, unaided by other skilled hands, to cast, secure, castrate, and set free any yearling colt *within* fifteen minutes. I have never been able to do it within eighteen minutes. On two different occasions during this season I, without any skilled assistance, threw, secured, castrated, and set free *five* yearling colts in *one hour and a-half*, and considered even that pretty smart work. This gave about eighteen minutes to each colt; but the five within one hour only gave twelve minutes to each colt, while the three in thirty-two minutes gave less than eleven minutes to each, either of which is impossible without skilled assistance. By skilled assistance I mean someone to cast and secure the colt or colts while you are operating with knife, and torsion or cautery tools. This is the only way in which such feats can be accomplished as those related by Messrs. Thomson and Tait.

A good deal of discussion took place as to whether *ropes* or *hobbles* were preferable during castration, and it seems ropes are generally used in various fashions. During the last 27 years I have only used the ropes on about a score of colts, while I have secured a great many hundreds of all ages with hobbles specially made for the purpose; and I never had any difficulty, except in three cases, in getting on these hobbles *after applying the twitch.* I never attempt putting on either hobbles or ropes without twitching; and I never see any stop in applying the twitch if the animal has been previously handled, but in some cases where colts have never had a hand, nor a strap, nor a rope touch them, there is at times considerable disturbance before that *pacificator* is adjusted in or on its natural position! I once saw five men and a two year's old colt all floundering on the greensward in one inseparable and struggling mass! This colt, although two years old, had never seen a rope until we endeavoured to catch him in the corner of a small paddock, where we finally twitched him, put on the hobbles, and my father castrated him with the actual cautery.

If you have a proper set of hobbles, and a proper set of "Torsion tools," *and know how to use them*, you can beat creation and do your work as satisfactorily on the top of a hill, or ten miles from any human habitation, as at the fireside, or within reach of fire.

It is of no use Professor Williams telling us that, if he were in a country practice, he would go in for castrating with the hot iron, slitting up the scrotum, and all the other barbarities attendant on operating with the actual

cautery! Professor Williams, if ever he tried such a retrograde step, would soon return to his old love—the torsion by clams and forceps!

In twelve seasons I used nothing but the actual cautery, and was very often finding myself in hot water with the results; but for the last 16 years I have not lifted a hot iron for castration, and have been very successful with torsion by clams and forceps. I have done a few by ligature, and am in no ways in favour of that mode. Twenty-five years ago I did an eight-years-old prize Clydesdale stallion by ligature, and in one of the cords *there was no artery to secure*; seeing which, I took another inch off the end of the vascular cord, but still found no artery, and never did. Has anyone ever met with such a case? This animal made a fine recovery.

I am not at all satisfied with what Professor Dewar says about scrotal hernia (enterocele) during castration. I asked him to explain how he got rid of the "loop of bowel"—more or less extensive—which is found in such cases, and all his answer is that he and his correspondents returned it, but that *he* found some difficulty in doing so. I should rather think he did!

Mr. Dewar and his correspondents seem to be adepts at returning this "loop of bowel," which comes down during or after castration, and it would really be extremely satisfactory if they would condescend to explain minutely how they do so, so successfully. I have done the thing myself several times, but I must confess without good results; and I see Mr. Thomson lost the case quoted by him as occurring in his practice.

I have an idea that these "loops of bowel" are *never in the scrotum prior to castration*, but that they descend during or immediately after the operation. It is, in my opinion, utterly impossible for these "loops of bowel," of even small dimensions, to remain in the scrotum for any length of time without very serious results, as the canal between the abdominal and scrotal cavities is not of such a size as to allow the "loop of bowel" in the scrotum to perform its natural functions, and we all know the results of a stoppage of *any part* of the intestinal canal.

I have for a long time thought that in all cases of so-called congenital hernia in foals—I mean scrotal hernia—we have merely a descent of omentum (epiplocele), and never any part of the intestinal tube (enterocele). Most of us are conversant with the immense size to which these scrotal hernias in foals at times attain; and if we for a moment suppose that the enlargement consists of intestines, we will at once see the serious nature of the abnormality, and the utter impossibility of its disappearing *per se*, as those congenital hernial enlargements generally do. I would like to know if anyone ever found, during castration, a "loop of bowel," in the scrotum of any of those colts which had congenital scrotal hernia when foals? I never did; and I think others will bear me out in proving that if anything abnormal appeared in such cases, it was merely omentum; and that in all cases where the true bowel put in an appearance, either during or after castration, no abnormality had ever before been either seen or suspected.

We may, therefore, take it for granted that the descent of part of the omentum into the scrotum is harmless, and may exist for weeks, and even months, and cause no disturbance; but that a descent of true bowel into the same cavity is always dangerous, and will soon be followed by very serious results.

I have never castrated with the ecraseur, nor with the wooden clam; but I believe the ecraseur is generally followed by hæmorrhage, and the wooden clam is fully as barbarous as the hot iron; so I intend holding on by *Torsion*, as being the easiest, safest, and most expeditious mode of equine and asinine castration.

Banff, N.B. A. E. MACGILLIVRAY.

THE DANGER OF SEA-SAND AS BEDDING FOR HORSES.

DEAR SIR,—In your number for the month of July, in the discussion on Professor Pritchard's lecture on "The Feeding and Management of Horses," I observe an incidental allusion to the use of *sea-sand* as a substitute for bedding for horses.

In the year 1877, the disastrous consequences which may occur from this practice were well illustrated by cases of Enteritis and Colic occurring in a batch of horses which had been allowed sea-sand in lieu of straw for bedding. In a communication to the VETERINARY JOURNAL on "Sand-Eating amongst Horses," I quoted this and other instances which had come under my notice. Should you think the subject of sufficient importance and of general interest, I think the original communication (VETERINARY JOURNAL, vol. v., p. 399), might be republished as a caution of the danger of using sea-sand as bedding.

WALTER S. ADAMS,
Veterinary-Major.

Remount Depôt,
Hosur, *August 8th.*

N.B. In last line but one of the said article, for "*eighty pounds* of sand," read "*forty pounds* of sand."

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from F. C. Mahon, London; E. W. Hoare, Cork; J. H. Carter, Burnley; Dr. Billings, Lincoln, Nebraska; Vet.-Lieutenant L. J. Blenkinsop, Lahore; G. Thatcher, London; Vet.-Major W. S. Adams, Hosur; H. J. Dawes, West Bromwich; W. Awde, Barnard Castle; C. Teyssandier, Paris; J. W. T. Moore, Newcastle-on-Tyne; A. W. Hill, London; A. E. Macgillivray, Banff.

BOOKS AND PAMPHLETS: *W. Sutherland*, Sheep Farming; *T. Smith, M.D.*, On Changes in the Red Blood-Corpuscles in the Pernicious Anæmia of Texas Cattle-Fever; *P. J. Cadiot and T. J. W. Dollar*, Roaring in Horses; Proceedings of the National Veterinary Association; Statistical Report of the Army Veterinary Department in the Bengal Presidency; Report of the Cape of Good Hope Department of Agriculture; New South Wales Report of the Stock and Brands Branch of the Department of Mines; *Vet.-Captain G. Rayment*, Horse-Breeding in India; *Vet.-Captain F. Smith*, A Manual of Veterinary Physiology; Report of the Minister of Agriculture for the Dominion of Canada; Annual Report of the Royal Society for the Prevention of Cruelty to Animals; Bulletin des Séances de la Soc. Nationale d'Agriculture de France.

JOURNALS, ETC.: *Agricultural Journal of the Cape Colony*; *Bacteriological World*; *Thierarzt*; *Archiv fur Wissenschaftliche und Praktische Thierheilkunde*; *Repertorium der Tierheilkunde*; *Moderno Zooiatro*; *Condensed Extracts*; *Annales de Méd. Vétérinaire*; *Journal de Méd. Vétérinaire et de Zootechnie*; *New York Times and Register*; *Lancet*; *Baily's Magazine*; *British Medical Journal*; *Live Stock Journal*; *Field*; *Edinburgh Medical Journal*; *Revue Vétérinaire*; *Echo Vétérinaire*; *Journal of the Society of Arts*; *Land and Water*; *Veterinary Archives and Annals of Comparative Pathology*; *Mark Lane Express*; *Annales de l'Institut Pasteur*; *American Veterinary Review*; *Presse Vétérinaire*; *Clinica Veterinaria*; *Schweizer Archiv*; *Wochenschrift für Thierheilkunde*; *Giornale de Medicina Veterinaria.*

NEWSPAPERS: *Morning Advertiser*; *Cape Times*; *Scottish Leader*; *Times of India*; *North Wales Chronicle*; *Yorkshire Post*; *Dundee Advertiser*; *Iowa Farmer and Breeder*; *American Farmer*; *Daily Nebraska State Journal.*

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